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TREATMENT OF PERIODONTAL DISEASE*

SIDNEY SORRIN, D.D.S., F.A.C.D., F.A.D.M., F.A.A.A.S.†
and MARVIN SIMRING, A.B., D.D.S.‡

The consideration of treatment for periodontal disease is of prime interest not alone to the specialist in periodontia but also to the general practitioner of dentistry and his patient. Almost every dental procedure—be it orthodontic therapy or exodontics, partial denture prothesis or endodontics, operative dentistry or pedodontics, —each individual phase of dentistry may be considered as a form of periodontal therapy; for every alteration in structure and function of the mouth has a bearing on the health of the periodontal tissues. Dr. Goldman[1] states: "Whatever influences the periodontium is a part and parcel of periodontia. Thus, periodontia is a common denominator of all dentistry." Therefore, an integrated and balanced understanding of all phases of dentistry is basic to a properly organized plan for the treatment of the periodontal tissues.

This morning we shall consider some specific technics of periodontal therapy and then observe the results of practical cases, which Dr. Sidney Sorrin will present shortly. However, we must first consider our aims and goals in periodontal treatment inasmuch as these are aims and goals of dentistry in general. We aim to help to preserve, maintain, and restore to functional health:

1) the teeth
2) the periodontium, i.e. (the alveolar bone, the periodontal membrane, and the gingivae) and
3) the body as a whole—
   a) through the elimination of focal infection,
   b) by providing masticatory efficiency for optional gastro-intestinal function as well as
   c) by the psychological benefits which improved comfort, esthetics, phonetics and confidence provide.

That is what we are all doing—that is what we are capable of achieving—that is our professional responsibility. Realizing that we are providing a service to our "patients as whole in their environment" permits us to provide a complete dental and periodontal service that provides maximum satisfaction to patient and doctor.

The periodontist is no longer bogged down by a narrow consideration of isolated pathologic lesions. He has extended his vista to consider the effect of one tooth upon another, of one arch upon the other, of one tissue upon another, of organs and organ systems upon each other and of his patient in relation to other individuals and to himself.

Our approach toward this broad concept of periodontal therapy is based upon three fundamental phases:

1) Elimination of causes
2) Elimination of effects
3) Raising tissue resistance.

We usually draw an analogy between a camera supported on a tripod and periodontal disease. We know that to obtain excellent pictures, it is necessary first to balance the camera properly, and this depends upon the stability of the tripod. Each leg is adjusted to give the camera support. The treatment of periodontal disease may be compared to the camera in its dependence upon a tripod of three factors: (1) the removal of the etiological factors, particularly the establishment of occlusal equilibration; (2) the removal of deposits and smoothing of the cementum; (3) the raising of tissue resistance. Without the combined influence of these factors, the treatment in the long run is doomed

* Resume of talks given before Massachusetts State Dental Society, May 4, 1954.

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to failure. The eradication of the etiological factors may be accomplished by the dentist after a thorough and careful study of the subject of etiology. The removal of deposits and smoothing of the cementum is made possible by the scientific use of instruments, and the building up of tissue resistance may be accomplished by the proper application of toothbrush massage and diet. Obviously, a contract really exists between patient and dentist whereby the dentist pledges to do two-thirds of the work and the patient one-third. Without this cooperation, failure will result. (Sorrin[2])

From this, it is immediately apparent that the key to therapy lies in discovering the causes which treatment must eliminate. Many a failure in treatment has resulted from a failure in diagnosis. Dr. J. Lewis Blass and Dr. Arthur Yohai have discussed the diagnostic phase of periodontal treatment. We cannot overstress the importance of completing a thorough diagnosis and treatment plan before instituting treatment for our patients.

We must evaluate all the etiologic factors, correlate and re-evaluate them in relation to our patient and his needs, and map out his treatment plan accordingly. To this end, the etiology table in Miller's "Textbook of Periodontia,"[3] provides profound insight into the field of periodontal therapy. It would be beyond the scope of these papers to cover the entire subject; our post-graduate students often spend two full years learning the groundwork of Periodontia. Therefore, we have selected a few special points which, in their proper perspective, we hope you may take with you and incorporate into the practical procedures of your daily office practices.

The perspective in which periodontal disease is viewed is that pathosis results from a multiplicity of factors as listed in this etiologic table.

Rarely, if ever, has periodontal disease been

ETIOLOGIC CHART
(S. C. MILLER)

Dysfunctional

1. Overfunction.
   a. Excessive stress on the teeth
   b. Insufficient periodontal support
   c. Too powerful masticatory musculature
2. Underfunction.
   a. Premature (natural or artificially produced)
   b. Nonocclusion
   c. Indolent mastication
3. Abnormal habits.
   a. Unilateral mastication
   b. Abnormal biting habits
   c. Clenching
   d. Bruxism and Bruxomania

Irritational

1. Abnormal anatomy.
   a. Tooth form
   b. Bulbous contour
   c. Proximal contact
   d. Tooth position
2. Deposits on teeth.
   a. Supragingival (salivary) calculus
   b. Subgingival (serumal) calculus
   c. Materia alba
   d. Mucinous plaques
   e. Protein pellicle
3. Nondetergent diet.
4. Food impaction.
   a. Vertical
   b. Horizontal
5. Mechanical irritants
   Cavity margins, improper inlay or filling margins; orthodontic appliances; bridges, clasps, or dentures which impinge upon or irritate the gingivae
6. Chemical irritants.
7. Atmospheric irritants (mouthbreathing).
8. Improper toothbrushing.
9. Improper orthodontic procedure.

Systemic

1. Faulty nutrition.
   a. Acid-base disbalance
   b. Vitamin deficiency
   c. Mineral deficiency.
2. Debilitating diseases.
3. Blood dyscrasias.
4. Endocrine dysfunction.
5. Pregnancy.
6. Allergies and drug idiosyncrasies.
7. Metallic poisoning.
8. Roentgen, radium and atomic radiation.
9. Psychosomatic factors.

a direct result of but one cause. The complex interaction of factors determines the disease. To argue whether periodontal disease is local or systemic in origin is therefore pointless. Specific local and specific systemic factors form a Gestalt or pattern of etiology in each case. The etiologic factors act in unison; they are considered separately only in order to treat the disease most effectively.

The fulfilment of the aims and goals of periodontal therapy can be accomplished best by formulating a definite plan of treatment. The sequence of performing each step is based on a careful evaluation of the relationship of etiology to pathology. Thus the first step must be a careful charting of the case based upon examination of the patient clinically, roentgenographically as well as with the aid of study casts and whatever systemic tests may be indicated in a given case.

A practical case can best illustrate this technique of case analysis and the reasons for the choice of a specific treatment plan or order in periodontal therapy.

The patient, a young woman age 28, presented herself for treatment. She was aware of bleeding gingivae, unpleasant taste in the mouth, wedging of food between the teeth, pain in the upper first molar regions when chewing and she had noticed the migration and separation of the upper incisors.

At first glance, one might not consider this to be a very serious periodontal situation. Roentgenographic examination revealed the development of advanced periodontal disease in both upper first molars and the lower left first molar regions. Alveolar bone loss was apparent between the lower left first and second molars. An open contact between these teeth immediately led us to suspect food impaction as one of the etiologic factors at this particular site. The finding of caries was further evidence of food impaction and the patient, of course corroborated this belief.

In the light of these roentgenographic findings the patient was re-examined clinically and all findings were reported upon this inclusive chart. The gingiva showed evidence of mild inflamation. There was stagnation and a bluish color of the gingivae. The patient's home care was apparently ineffective in maintaining adequate oral sanitation. The irritating effects of calculus were apparent and both subgingival and supragingival deposits were discovered. Further irritation resulting from an overhang of the margin of the porcelain jacket on the upper right central incisor was observed. Examination of the study casts and of the patient indicated premature contacts, unever wear and other morphologic abnormalities. Questioning of the patient revealed that the traumatic effects of occlusal malrelation were accentuated by a habit of clenching the teeth. Thus the traumatic effect of premature contact becomes a distinct etiologic factor in the picture of periodontal pathosis. Another habit complicated the picture. The patient had a habit of tongue thrusting. In particular, when swallowing, the tongue was thrust forward against the teeth. This, of course, is significant in inducing a labial migration and separation of the incisors. A possible endocrine factor was indicated by the patient's medical history. She had been unable to conceive and had consulted with many gynecologists. A psychosomatic factor may have also operated in this highly nervous and tense individual. Dietary analysis indicated a non-detergent, high carbohydrate diet.

The complex etiologic basis of this case as determined by the diagnosis, provided us with a means of treating the complex disease which had resulted. The extensive pockets made for a hopeless prognosis for the upper first molars and for the lower right first molar where the trifurcations and bifurcations were involved. Our plan must involve elimination of the hopeless teeth as soon as practicable. The destructive process is thus prevented from involving the alveolar bone of the adjacent teeth. Furthermore the possibility of focal infection from the deep pockets was eliminated as quickly as possible by extraction of the hopelessly involved teeth.

Dietary analysis and advice was next. A one week diary of the dietary intake is provided by the patient for analysis according to the various components of a well balanced diet. The "Basic Seven" of Food and Nutrition Board are used as the basis of this analysis. A detergent, well-balanced diet was prescribed.

Next, gross irritative factors were eliminated. Calculus was removed. Overhanging fillings were removed or adjusted and the patient was taught a definite method of home care. The gross deposits must be eliminated first, lest the vigorous massage force the gingiva against the calculus and induce an acute exacerbation of the disease. An attempt is made to eliminate destructive habits. Bringing these habits to the patient's awareness is the first step. Next they are either consciously eliminated or a harmless habit is substituted. Thus the patient was taught to avoid thrusting the tongue against the teeth by placing the tongue against the rugae when swallowing.

Clenching was avoided by developing the alternate habit of "lips together, teeth apart." Auto-suggestion before retiring in the evening was also advised. "If you grind your teeth, you shall awake." (Boyens.)

Occlusal trauma was next considered. In this patient steep cusps induced a "locked bite." Freedom of mandibular movement was provided by grinding to equilibrate the occlusion. Food impactions due to plunger cusps or irregularities of the marginal ridge and groove relationships were adjusted by grinding.

The mouth was now in a sufficient state of health to permit ideal conditions for healing of pockets either by reattachment with regeneration of bone or by surgical elimination of the tissues. Curettage was undertaken first to obtain shrinkage of the tissues and eliminate excessive granulomatous tissue. Finally, those pockets which remained, were surgically excised (gingivectomy) and proper gingival architecture leading to a fine regular knife-edge gingival margin was established.

A final check of occlusion and oral sanitation were made and when the tissues had healed and appear normal and healthy, the patient was ready for the restorative dentistry. Roentgenographic study of the patient's dentition at yearly intervals demonstrated the practical wisdom of this plan of action. Regions of alveolar radiolucency had become radiopaque indicating the laying down of healthy well calcified bone tissue. The diastema which had developed between the central incisors had closed.

Clinically the teeth were firm and the gingivae appeared free from inflammation. There was no bleeding or suppuration from the gingivae and the patient was quite comfortable and happy.

Every case which the periodontist encounters represents a syndrome which, in a way is unique unto itself. The particular relationship of the specific etiologic factors active in an individual case of peridontal disease are always as unique as each individual and require the most careful analysis to determine the etiology and thus start the patient on the road to recovery.

One patient may show evidences of occlusal traumatism resulting from premature wear; another's trauma results from excessive wear. In one patient, an intrabony pocket may lend itself best to treatment by the flap approach; in another patient or in another part of the same mouth a deep gingival pocket is best eliminated by gingivectomy. In another situation, the progress of a pocket is stopped by resection of the labial frenum. One patient may speak freely and provide a complete and valuable history with the greatest ease; another patient may need to be gently drawn out before he will provide information about himself which is essential for the understanding, management, and maintenance of the case.

In summary, we are treating the diseases of the periodontium for there are as many diseases as there are patients. Each must be carefully analyzed according to our basic plan and success will be ours to the extent that we are capable of eliminating causes, eliminating effects, and raising tissue resistance.

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TRACTAMENTO DE MORBO PERIODONTIC

Dr. chir. dent. Sidney Sorrin (F.A.C.D., F.A.D.M., F.A.A.A.S.) e Dr. chir. dent. Marvin Simring

SUMMARIO IN INTERLINGUA

Goldman observa: "Periodontia es un denominator commun del dentisteria." Nostre objectivo es contribuer al mantenentia o restauration del sanitate functional de (1) le dentes, (2) le periodontio (i.e. le osso alveolar, le membrana periodontic, e le gingivas), e (3) le corpore in general per (a) eliminar infectiones focal, (b) establir efficacia masticatori pro assecurar le optime function gastro-intestinal, e (c) provider le beneficios psychologic que resulta de meliorationes esthetic e phonetic e del altiate satisfaction e confidentia del individuo.

Iste objectivo es attingite per (1) le elimination de causas, (2) le elimination de effectos, e (3) le melioration del resistentia del texitos.

Un tal attitude implica un specific ordine in planar le tractamento, i.e. un ordine que es determinate per le exacte diagnose de cata caso individual.

Factores systemic—includente deficientias dietari—debe esser corrigite le plus promptemente possibile in le curso del tractamento. Il es etiam necessari corriger al initio factores irritante, per exemplo depositos calculari, plumbationes extrudente, etc. Postea le patiente debe esser instruite in adequate habitudes personal de sanitation oral.

Le functionamento normal debe esser restaurate per medio de equilibration occlusional. Quando assi le bucca se trova in le melior condition curative, nos es preste a instituer specific procedimentos pro eliminar focos periodontic que ha non ancora disparite.

Il es rar si del toto possibile que un morbo periodontic es le resultato directe de un sol causa. Pro iste ration omne argumento circa le question de si un morbo periodontic es de origine local o systemic es pauco rational.

1955 CHILDREN'S DENTAL HEALTH WEEK

The Oral Hygiene Committee of Greater New York has formulated an extensive program of activities for the 1955 Children's Dental Health Week which will take place from February 7 through February 11, 1955. This is the seventh annual dental health education program held for the public, in cooperation with major health agencies, community and educational groups of the City of New York.

The message of better dental health will be brought directly to the children in the schools by dentists of the Speakers Bureau of the Oral Hygiene Committee of Greater New York, who will work in close harmony with the New York City Board of Education.

THE GROWTH OF BONE: SOME CONCEPTS OF IMPORT TO DENTAL MEDICINE*

WILTON MARION KROGMAN, PH.D.†

Strictly speaking it might be better were "bones" to be stated in the title, instead of "bone". I would like to discuss growth of bone *not* as an organ or tissue, but as a structure; *not* the process of bone growth, per se, but the integrative pattern of the growth of adjacent bones. Specifically, I shall focus upon the correlated and synchronous growth of the bones of the head and face as they, in turn, correlate with dental development. The entire process of cephalofacio-dental unfolding is our theme.

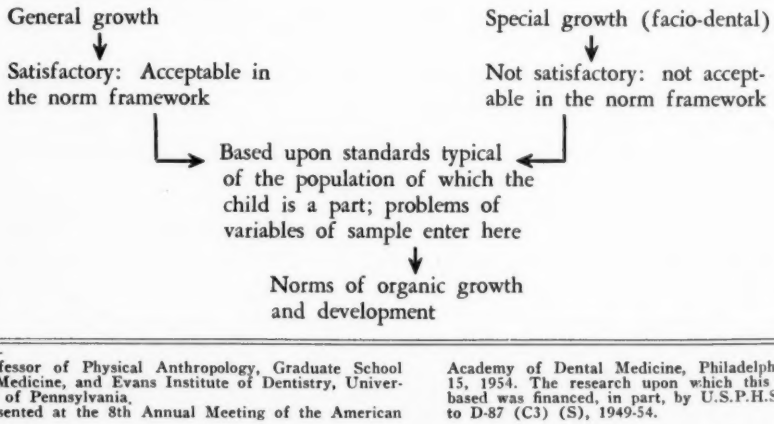
At the Philadelphia Center for Research in Child Growth we have for some years been engaged in the analysis of human growth and development, concentrating upon the age period 6-16 years. We have seen 600 Philadelphia School children annually since 1947. They constitute our School Series, or "Normal Control" Series, for the children were enrolled initially upon the basis of "normal" or acceptable medical and dental health. In addition we have growth records on 550 children receiving orthodontic care in the Orthodontic Dept. of the Graduate School of Medicine. These children, concentrated in the 7-17 year age-bracket, have been seen semi-annually during the course of treatment; they constitute our Orthodontic Series. It is on the basis of the study of these two series. School and Orthodontic, but we have formulated several basic principles.

First of all, let me present a schematic overview of the integrative nature of growth research, in terms of general somatic growth and of specialized facio-dental growth. This scheme highlights our procedures at the Growth Center.

The procedure may, for convenience, be broken up into three major categories: 1) the growth examination as a concept; 2) the emergence of standards; 3) the interpretation and analysis of the individual case-history. We shall follow this order.

This is a sort of first screening, for two growth spheres, general and special. For the first we must refer to norms for height, weight, skeletal age, and so on. This means that the whole child is the basic consideration; his "normality" or "deviation" as regards his own pattern of growth and development is a first consideration. The same reasoning applies to

I. The Growth Examination


General growth
Satisfactory: Acceptable in the norm framework
Special growth (facio-dental)
Not satisfactory: not acceptable in the norm framework
Based upon standards typical of the population of which the child is a part; problems of variables of sample enter here
Norms of organic growth and development

† Professor of Physical Anthropology, Graduate School of Medicine, and Evans Institute of Dentistry, University of Pennsylvania.

* Presented at the 8th Annual Meeting of the American Academy of Dental Medicine, Philadelphia, Pa., May 15, 1954. The research upon which this discussion is based was financed, in part, by U.S.P.H.S. Grant D-87 to D-87 (C3) (S), 1949-54.

the special growth analysis. There, for pertinence, I have stated "facio-dental", for this is the type of problem of immediate concern. As a rule, on the Orthodontic Series, the answer is at once "not satisfactory", for the imbalance in dento-facial relationships often implies a growth aberrancy or deviation.

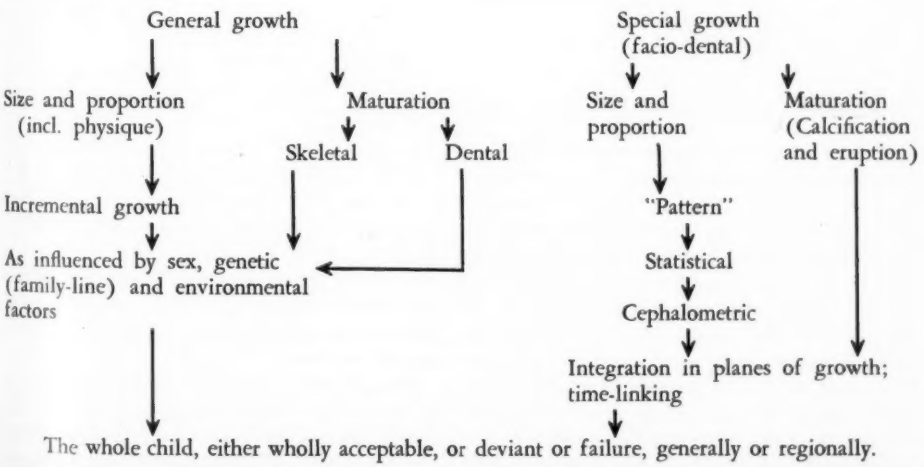
Then, having classified both the general and special growth pictures, we turn to the basis of judgment. Obviously we have all sorts of charts, tables, graphs, atlases, and so on, that purport to give the "normal", "the average", or "the standard", as the case may be. I stress the necessity of a standard directly applicable to the child under consideration. Hence, at the Growth Center we are developing norms of physical growth (both general and special) of, by, and for Philadelphia children. Whether or not our present sample is truly representative remains to be tested.

Here, highly compressed, are the steps taken to develop standards which represent the mean (the central tendency) and the range (normal range of variation). For general growth there is size, proportion, and maturation as expressions of the three major aspects of the growth problem: growing, growing up, growing older. Sex, heredity, and the environment all are factors that dictate standards separated by sex and modified by individual biogenetic potential and individual growth circumstances (health, diet, and so on).

In many respect the foregoing is paralleled for special growth. There is one of them to which I'd like to call special attention, viz., "pattern". I've indicated that it may be either a statistical norm (mean, ± one standard deviation) or a cephalometric norm; the first is a generalized concept, referable to the entire group; the second is particularized, assuming that the facio-dental complex of each child grows pattern-wise, i.e., in a manner determined by the general facio-dental configuration at or shortly after birth (see Brodie, 1941). While this latter concept is a useful one to the clinician (who, after all, works with but one child at a time), it must not be given a spurious immutability. Potential is one thing; realization is another. The path of growth may be strewn with the boulders of habit, health, diet and other hazards. The unfolding of the individual "pattern" is, in last analysis, one of delicately adjusted and timed integration.

The basic analysis, and the final synthesis, of the two approaches—general and specific—ends up, as it should, with the appraisal of the

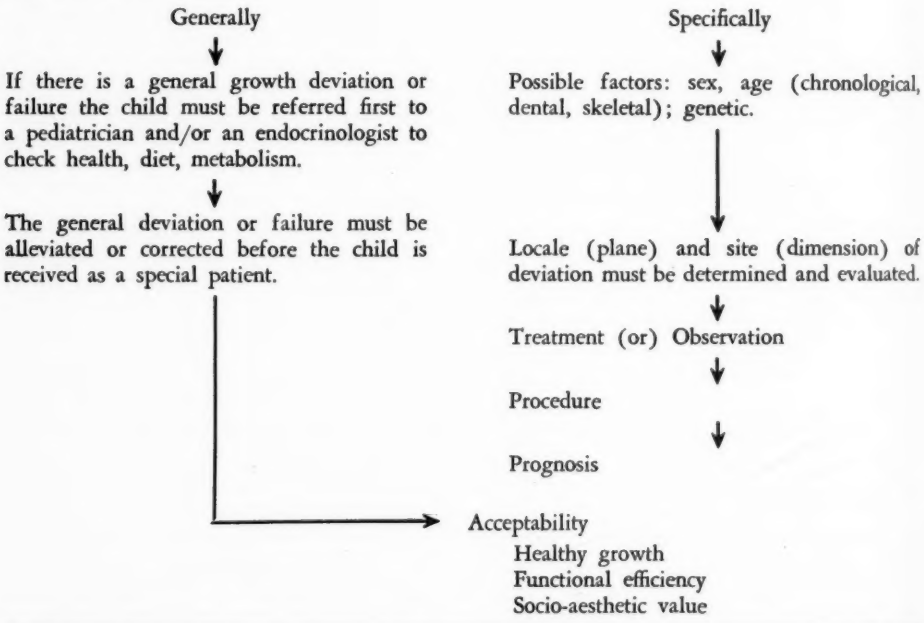
II. The Standards



growth status and progress of the whole individual child. He may be "normal" (or reasonably so) in every respect. He may be a deviant, or even a failure, in one or more growth attributes. The evaluation is dependent upon the reliability and accuracy of the standards in the first place, and the skill, judgment, and common sense of the clinician in the second place.

The goal is common to both researcher and dental clinician: a child who will become a healthy, functionally efficient adult, who quite

III. The Patient


Generally
If there is a general growth deviation or failure the child must be referred first to a pediatrician and/or an endocrinologist to check health, diet, metabolism.
The general deviation or failure must be alleviated or corrected before the child is received as a special patient.
Specifically
Possible factors: sex, age (chronological, dental, skeletal); genetic.
Locale (plane) and site (dimension) of deviation must be determined and evaluated.
Treatment (or) Observation
Procedure
Prognosis
Acceptability
Healthy growth
Functional efficiency
Socio-aesthetic value

Here is where the healing arts of Dentistry and Medicine have occasion to meet. If there is reason to believe that general growth is significantly "out of line" the clinician in dental medicine should see to it that his colleagues in Pediatrics or Endocrinology ascertain possible etiology of the general deviation or failure. If there is ill health, or dietetic imbalance, or an endocrinopathy, these must be treated first. Then, and only then, may we cross over to the special aspect of the child as a patient.

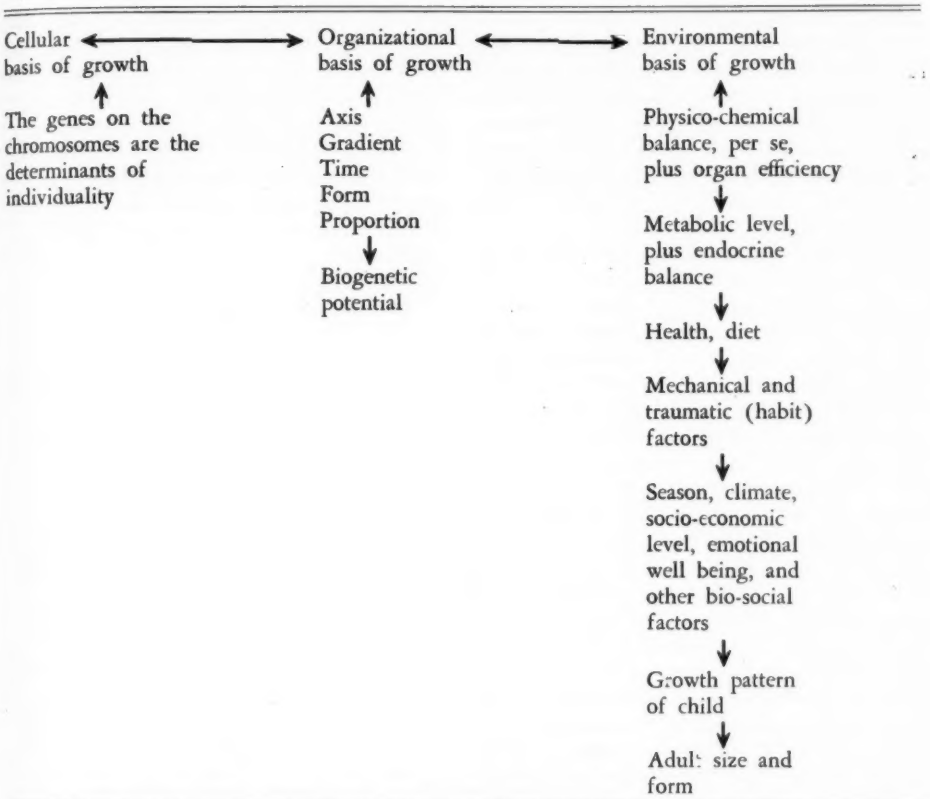
After the routine of evaluation the researcher and his standards meet head-on with the clinician. "To treat" or "not to treat" is the problem. On an individual basis we must decide on immediate care or on an observational period. The decision made, the clinician takes over.

literally can put "his best face forward"!

With the foregoing analytic outline in mind, let us now consider certain concepts of growth that will be of interest to, and applicable in, dental medicine.

1. Dento-facial growth is basically a reflection of body growth generally. In support of this assertion the following synthesis of growth may be observed.

This highly integrative process, which is often a compromise between growth potential (biogenetic) and actual growth achievement (environmental modification, if any) holds no



less for face and jaws than for body generally. If this be accepted, then the dentist who works with and within the oral cavity should secure data on the growth of the whole child. This, it seems to me, is a common-sense attitude that needs no defense.

The real problem is what mechanism or technic will give a good, working idea of general bodily growth? Within reason—allowing for genetic (or "family-line") growth pattern—the observation of growth in height and weight will give a good working idea. I would stress height more than weight for height is linear and, hence, more closely realted to bone growth, per se. There is considerable reason to believe that growth periods, or "spurts", in stature are reflections of the impulse to skeletal growth generally. When growth increment in stature is at a maximum there is a concomitant incremental surge in facial dimensions, even though the correlation is not perfect, either in amount (percentage), or increment, or in timing. At the time of the circum-pubertal statural acceleration (sometime between 10-15 years) it is safe to assume that facial dimensions reflect, in degree, the growth surge of this pubertal quickening.

What mechanisms are available to record and evaluate growth progress in height and weight? It is not the function of this discussion to go into this problem in detail, but I would call attention to the Wetzel *Grid for the Evaluation of Physical Fitness* (1941) and the Stuart-Meredith *Charts of Percentile Rank in Height and Weight* (1953). Both of these will give an estimation and evaluation of individual

progress in height-weight growth.

2. Dento-facial growth may be studied both cephalometrically and roentgenographically. Growth is measureable. This statement implies that growth is measurement, i.e., increase in size and change in proportion. This further implies that growth is differential, i.e., there are different time-rates of growth in the several dimensions of the face.

The physical anthropologist has long measured the face—both in the skull and in the living—in considerable detail. It is true, of course, that the measurements were initially more or less static, i.e., devised for classification rather than the dynamics of growth incremental movement. As a result, many anthropometric measurements are not really growth oriented; they are over-all, rather than discrete, and often obscure growth loci. However, even with this limitation, they can be meaningfully interpreted.

The measurement of the living head, taken directly on the subject at the time of study, is called *cephalometry*. It is the analysis of size and proportion—via ratios or indices—furing physical growth. The head and face are both measured on a serial basis and size and increment can be observed from time to time to give a record of growth progress.

The face, like the body, grows in three planes: vertical (superior-inferior), transverse (lateral), and sagittal (ventrodorsal). These are, respectively, height, breadth, and depth. Integrative growth in these three planes gives a well-proportioned face.

Borrowing directly from cephalometry is the X-ray technic of *roentgenographic cephalometry*. Under standard conditions, in a Cephalometer,* the living head is X-rayed in two views, left lateral and postero-anterior. Here, there are but two growth planes controlled in each X-ray: the lateral view controls height and depth, the postero-anterior view height and breadth. To date serial data are available only for the lateral view, i.e., growth in height and in depth.

In my opinion the two technics, taken on the living head each time the child is seen, are complementary. The first is an appraisal of over-all facial bone growth—the growth of the whole supporting framework, as it were. The second is also over-all, but the penetrative nature of the X-ray permits an additional insight into the deeper relation of bone-to-bone in adjustive growth. There is another sphere in which the two complement one another: the first measures whole head and face in space, cutting across all three planes as dimension dictates; the second measures part in single direct plane, part in single compressed or telescoped plane† Each technic tells a lot. At the *Growth Center* we are seeking to correlate the two methods (see Henriques, 1954) in an effort to make available certain constants which will relate the one technic to the other.

3. The three planes of the face grow at different rates, and at different times. This is a very important consideration. It implies an ultimately integrative growth process in the face, but it also implies that growth is at once time-linked and non-synchronous. Because of this there may be time-lags or rate-differentials that may, during the process of facial growth, give rise to transitory growth in imbalance or deviation. Here are data in support of this assertion.

Plane	*% Attained at Birth*	*% Achieved Postnatally*
Breadths	55-60%	40-45%
Heights	40-45%	55-60%
Depths	30-35%	65-70%

The percentages above given are in terms of adult values taken as 100%. In this sense, as an example, facial breadths are 55-60% adult value at birth, and must record only 40-45% to achieve adult status. The important consideration here is that environmental factors, as they may affect growth potential, must do so differentially. By this I mean that the plane or "avenue" of the greatest amount of postnatal growth is ipso facto the plane of greatest vulnerability. Stated in simpler terms, depth dimensions are most apt to be effected, heights next, breaths least; anter-posterior relations in face and teeth are in most delicate growth bal-

* At the *Growth Center* we use the Broadbent-Bolton Roentgenographic Cephalometer (see Broadbent, 1937).

† This, of course, can be compensated for by studying lateral and p-a radiographs together; also, laminagraphy is useful (see Brader, 1939.)

ance, both as to growth amounts and as to susceptibility to such inhibitory factors as habit, other traumata, diet, illness, and so on.

4. Dento-facial growth may be analyzed in three different time?frames. Here is a concept that at present can be stated, but upon which not much information is as yet available. At the Growth Center we are in process of developing the concept. The three different time-frames are as follow:

a. *Chronological age.* This is the usual time-unit, based upon birthday-age.
b. *Dental age.* This is based upon eruption of the teeth; it must take calcification (seen via X-ray) into account.
c. *Skeletal age.* This is based upon an assessment of the hand X-ray. It is an evaluation of the maturational age of the child (rate of progress toward adult maturity).

The first age is non-biological. It is merely a record of the passage of sidereal time. The second and third ages are biological. Of the two the third is, in my opinion, by far the more important. It is closely related to the growth of the whole body; it is the basic biologic age of the individual child, and it sets the stage for accelerations and decelerations in the whole growth process, including the face. As a corollary, however, we may state that

5. Dental age and skeletal age, both biological, are only moderately correlated. Here again we may state the concept but await further elucidation as research progresses.

At the Growth Center we have all three ages on both our School Series and our Orthodontic Series. All our data are now reduced for chronological age and for dental age. Only on a small sample of our School Series have we calculated data based on skeletal age. The analysis suggests that, despite the moderate correlation, skeletal age is an excellent gauge for the possibility of aberrant or deviant dimensional growth, leading to possible dental malocculsion. We have found that the likelihood of faulty tooth-bone growth relationships is greatest when skeletal age is retarded a year or more with reference to chronological age (Henriques, 1954). This implies that a time-lag between bone growth and tooth calcification and/or eruption may be inherent in retarded skeletal maturation and growth.

I am increasingly of the opinion that anyone who works with growth—be it the researcher interested in basic findings, or the clinician concerned with application of the findings—must reckon with the skeletal age of the child. That is the real age of the child; that is the registry of the child's own unique impulse toward maturity. The bones register this impulse in a manner which permits assessment with a dependable degree of reliability. Let me be specific: given two boys, each 10 years by the calendar; one, however, is skeletally advanced one year, to 11 years; the other is skeletally retarded one year, to nine years. Hence, the two boys are not the same age, developmentally speaking —they are separated by two years of biological time. They should, therefore, be judged by different (or adjusted) growth standards. By this I mean different facial growth standards, different calcification and eruption standards, and so on. The point I want to make is simply this: interpretive specificity by the clinician must rest in large part upon the child's maturation age. In this sense each child's growth progress is unique to and for him.

I think this is the single most important contribution which I, a researcher, can make to you, the clinician. Growth is most often in your favor as you work with structures and tissues in the oral area. It is to the Orthodontist a potential avenue of adjustive treatment. It is to the Prosthodontist (who must work with age-changes) a factor in bone-to-bone reaction to the resorptive process. It is to the practitioner of Dental Medicine a measure of functional integrity (and, hence, oral health) as tooth and bone are in harmonious developmental unfolding. I firmly believe that a knowledge of the growth process broadens the base of clinical interpretation and understanding!

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ASPECTOS DEL CRESCENTIA DENTO-FACIAL QUE LE DENTISTA DEBEREA COGNOSCER

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SUMMARIO IN INTERLINGUA

Le crescentia dento-facial es in principio un reflexion del crescentia corporee in general. Ergo il es desirabile que le clinico sia informate del ratas e del rapiditate de crescentia in su patientes individual. Il es signalate que mesurationes serial del peso e del grandor de cata un del juvene patientes pote servir a definir le character de su crescentia systemic.

Le crescentia dento-facial pote esser studiate tanto cephalometrica- como etiam roentgenographicamente. Le prime de iste methodos require detaliate mesurationes del capite e del facie in vivo. Le secunde methodo require le analyse de expositiones lateral del capite. Ambe methodos es serial. Le prime es tridimensional (altor, largor, profunditate); le secunde es bidimensional (altor, profunditate).

Le tres planos del facie cresce a differente ratas e a differente periodos. Exprimite in valores median le facie del neonatos in comparation con illo de adultos es 55 a 60 pro cento in largor, 40 a 45 pro cento in altor, e 30 a 35 pro cento in profunditate. In altere parolas le crescentia post-natal debe adder 40 a 45 pro cento del valores adulte in largor, 55 a 60 pro cento in altor, e 65 a 70 pro cento in profunditate. Il pare que il existe un correlation inter le valores del crescentia de un del tres planos e le vulnerabilitate de ille plano a deviationes crescential (o systemic o local, como per exemplo in consequentia de habitudes personal del patiente).

Le crescentia dento-facial pote esser analysate in relation a tres manieras de mesurar le etate del individuo. Secundo iste manieras nos distingue (1) le etate chronologic, i.e. le etate ab le nascentia del individuo, (2) le etate dental, i.e. le etate del individuo ab le eruption de su dentes, e (3) le etate skeletal o biologic. Inter istos le tertie es le plus intimemente relationate al crescentia del corpore integre; illo es le etate de maturation basic del individuo.

Le etate dental e le etate skeletal, ben que ambes es de character biologic, non exhibi un frappante correlation. Nonobstante, le periculo de un aberrante crescentia del ossatura dental con resultante malocclusion del dentes es le plus pronunciate in casos de retardation del etate skeletal in relation al etate chronologic. Isto implica que casos de retardate maturation e crescentia skeletal es charcterisate per un disturbation del coordination temporal inter le crescentia ossee e le calcification e/o le eruption del dentes.

Le correlation inter crescentia palatal e crescentia facial es differentiate. In crescentia de largor il non ha un alte correlation inter le dimensiones (intra-oral) palatal e le dimensiones (extra-oral) facial, sed in crescentia de profunditate un tal correlation existe. Le crescentia del palato in longor arcal e in longor total es nettemente relationate al crescentia total del facie in avante e a basso.

Il es a sperar que le cognoscentia del crescentia dento-facial va render le dentista capace a tener se al alerta in reguardo a incipiente deviationes crescential e le possibilitate de un resultante malocclusion.

SPECIALIZED DENTAL CARE FOR THE PROBLEM PATIENT

JERRY J. ADELSON, D.D.S.,† FRANK E. FIERRO, M.D.,‡ and HOWARD BERGER, M.D.*

SPECIALIZED DENTAL CARE FOR THE PROBLEM PATIENT

The dentist in general practice will often encounter many types of individuals who present management problems. The writers, from their experience, have categorized these patients into three main classifications: the mentally retarded, the physically handicapped, and the emotionally disturbed. These classifications are general and overlapping, and it is possible to encounter patients who would fall into all three of these categories. There are, of course, many other types of disturbances and anomalies which are not included here because of the infrequency of encounter in general dental practice.

With the mentally retarded patient, the dentist is concerned primarily with the patients awareness and comprehension for facilitation of proper dental diagnosis and treatment. Therefore, the dentist must acquaint himself with the level at which the particular retarded patient functions; gauging his actions and rapport accordingly. Fears and anxieties are intensified in these patients due to their slower maturational development, limited comprehension, and numerous previous medical experiences. Therefore, the dentist can expect the retarded patient to react in a more traumatic way.

The patient with cerebral palsy represents the most serious problem within the physically handicapped group. As defined, cerebral palsy is characterized by incoordination, weakness, paralysis, or other aberrations due to pathology in the motor area of the brain. There are generally five types of the cerebral palsy patient. The ataxic, tremor, spastic paralysis, athetoids, and rigidities comprise this category. The type of treatment depends upon the degree and type of cerebral palsy. Generally, ataxic and tremor spastic types may be treated under routine dental procedures.

It would not be practical to enumerate the varied types and degrees of emotionally disturbed patients whom the dental practicioner encounters. However, those patients whose magnified fears cannot be overcome by accepted methods can be presumed to come within the scope of this category.

The relationship of the dentist to the patients in all the groups will be reflected by his attitudes and behavior as well as by his earnest desire to help them. The dentist must guard against manifesting his own frustrations, anxieties, and resistance to working with these patients.

By modifying patient management and treatment, some of the individuals in the three categories can be handled under normal conditions. Every effort should be made to channel as many of these patients into routine dental handling. However, many of the patients must be diagnosed and treated under highly specialized conditions, using new techniques.

The following procedure is recommended for the complete dental care of those patients whose problems are not amenable to solution by average dental practice. It must be understood that this procedure is not intended as a substitute for the usual dental management and techniques, but as an addition for those patients for whom routine treatment is untenable.

By utilizing adequate premedication, and performing diagnostic and restorative procedures under general anesthesia administered by a qualified physician, it is possible to give complete and careful dental services under a safe and evaluated method to individuals who, otherwise, would not be able to undergo dental care.

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PRE-OPERATIVE PHYSICAL CHECKUP

Before any treatment or diagnosis is begun, a complete physical checkup by the patient's physician should be performed. It is advisable to consult with the patient's physician and outline the course of treatment to be taken. By using the physician as informant, a complete history is obtained with stress placed on physical condition, previous illness and medications taken. When taking a history of these patients the following points should be probed: (1) the possibility of oral foci of infection, such as rheumatic heart disease, etc. (2) the types of drugs administered, as the reactions of some of these patients may cloud a dental diagnosis and produce conditions which may need correction, e.g. sodium dilantin, barbiturates, etc.

In addition to the preliminary checkup by the family physician, a medical examination should be performed just before the treatment by the anesthesiologist.

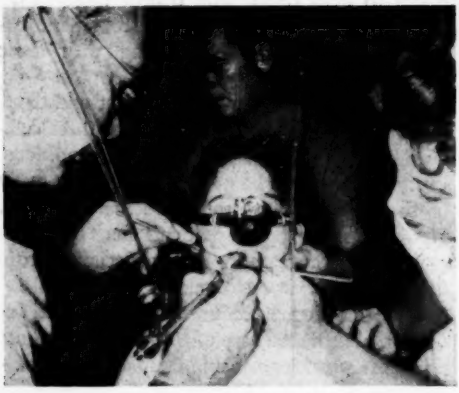

Fig. 1. A case of short duration being treated with nosepiece anesthesia. Two or three cavities are excavated, prepared, and filled. Impressions of the teeth are taken where gold preparations are required.

PREMEDICATION

Premedication is administered one hour before the patient presents himself at the office. This consists of a short acting barbiturate in combination with atropine sulfate. The barbiturate is usually three-fourths to one grain of nembutal. The atropine sulfate dosage is usually one-one hundred and fiftieth of a grain, and its action is to decrease salivation and block untoward reflexes. The premedication is administered in the form of a capsule, powder, or suppository depending upon the preference of the adult patient or manageability of the child. The premedication increases the cooperation of the patient, decreases the amount of anesthetic gases required for the necessary stage of anesthesia and thereby decreases the length of the recovery period.

Fig. 2. A face mask induction for a case of long duration. All dental treatment completed in the one session.

INDUCTION AND ADMINISTRATION OF ANESTHESIA

The method and type of anesthesia administered depends upon the age of the patient and the amount of dental treatment to be done. In cases of short duration with children, nitrous oxide and oxygen over ether is administered via nosepiece (Fig. 1). A mouthpack is inserted which serves the purpose of preventing the gases from escaping through the mouth, and also prevents the patient from aspirating debris. Great caution must be used in inserting the mouthpack since the airway must be kept open.

In cases of long duration the following procedure with children is used. Placing the child on an operating table, induction is initiated with nitrous oxide and oxygen, and when the plane of analgesia is reached, open drop anesthesia is begun. Commencing with nitrous

oxide and oxygen is indicated since a face mask induction will facilitate handling of the initial stage, (Fig. 2). However, a space helmet toy adapted for initial induction with inhalation anesthesia may be used where feasible, (Fig. 3).

After the patient is carried to a sufficiently profound level by open drop ether, a soft rubber or plastic catheter is inserted into either nares. Laryngoscopy is performed and the catheter is inserted into the trachea, thereby completing intubation. It is readily understood why the patient must be at the second plane of the third stage of anesthesia before introduction of the tube, since it is at this level that the laryngeal reflexes are abolished making an atraumatic intubation possible. The anesthetic agents employed in the maintenance of the anesthesia are nitrous oxide, oxygen and ether. Blood pressure, respiration and pulse are checked by the physician at five minute intervals.

Fig. 3. Using a "space helmet" for induction with cases of either long or short duration.

In certain cases where premedication has not had the required effect, an alternate method of induction with children will prove satisfactory. Basal anesthesia may be obtained by means of administering rectal pentothal via an enema. The dosage is one gram for every fifty pounds of body weight. Body temperature normal saline is used as a vehicle. In these cases, it is wise to administer the enema containing the anesthetic in a room which in no way resembles an operating room or dental office. After basal anesthesia is obtained, the child is carried to the operating room and anesthesia is maintained in the manner previously described.

Anesthesia for adults differs in that intravenous induction with pentothal is used. In cases of short duration, a moderately slow intravenous induction of a two point five (2.5) concentration of pentothal is begun until the patient is asleep. Maintenance of the anesthesia is then the same as that with children; that is, via a nosepiece of nasopharyngeal tubes using inhalation anesthesia.

In cases of long duration, a moderately slow induction of pentothal is begun. Here, however, maintenance of the anesthesia is by inhalation of gases via an endotracheal tube with the addition of a slow intravenous drip of pentothal as an adjunct. In this case, tubocurarine is administered to provide relaxation or to obliterate troublesome reflexes, (Fig. 4).

Fig. 4. Induction of anesthesia with an adult. Induction is the same in cases of long or short duration.

In the occasional case of acrophobia (patients with fear of sharp instruments and needles) the same method of obtaining basal anesthesia as with children may be used. The patient is administered an enema containing rectal pentothal. In these cases, however, intravenous anesthesia is instituted when the proper level is reached.

X-RAY TECHNIC UNDER ANESTHESIA

With regards to the occasionally severely unmanageable patient on whom it is impossible to do even a routine clinical or roentgenogra-

phic examination, it is necessary to perform these examinations after the induction of anesthesia. Since time is of the essence, a series of seven bite-wing radiographs are taken. These consist of four posterior and three anterior films. After induction is completed and anesthesia is maintained the bite wing film is inserted and the mouth closed with the teeth kept clenched by means of an elastic bandage, (Fig. 5). Since the patient is in a prone position, modifications of the usual roentgenographic technic are necessary. With the occlusal planes of both mandibular and maxillary teeth perpendicular to the floor, a vertical angle of zero degrees and a horizontal angle of plus eight to plus ten degrees toward the lower jaw is used for the molar and bicuspid bitewings. A vertical angle of plus 82 degrees is used for the anterior bite-wings, with the tube kept perpendicular to the film. Wherever possible, apical films are taken by using a plastic film holder and an elastic bandage.

Fig. 5. Taking a bite-wing radiograph of the bicuspid region.

OPERATIVE PROCEDURES

As soon as the radiographs are taken, the films are immediately developed by the assistant so as to be ready by the time operative procedures are instituted. While the films are being developed, the oral pharynx is blocked off with large moist gauze sponges, to obviate the possibility of any tooth, debris, or amalgam lodging in the pharynx. The operator at this point should perform a prophylaxis and any emergency periodontal treatment necessary; that is, patients with gingival enlargements who may require curettage or gingivectomy.

Since the developing and temporary fixing of the radiographs require about ten minutes, the operator will now have an opportunity for viewing them at the operating table. After examination and charting, the films are returned to the fixer for permanent records.

Any necessary operative procedures are done by quadrants with the assistant aspirating debris. A rheostat-controlled water spray and high speed equipment are used to allow for the utilization of high speed carbide and diamond instruments. If there is any salivation, the physician may give an additional intra-muscular injection of atropine sulfate. Therefore, conditions are as close to ideal as possible for dental procedures. That is, complete accessibility with direct vision; absence of salivation (due to the effects of the atropine); and total relaxation of the patient. In addition, the unhurried operating conditions minimize the tension and stress on the operator.

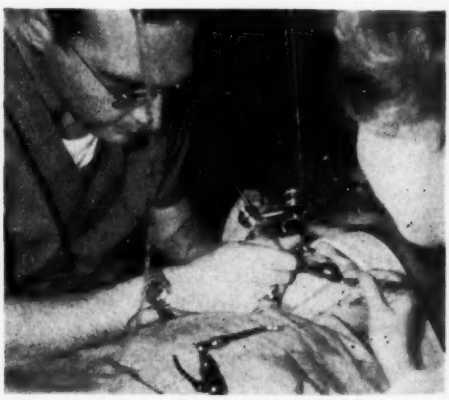

Fig. 6. Operative treatment in the case of long duration. All treatment is completed in one session with the exception of gold restorations and root canal therapy. This type of work is completed by the general practitioner after preparations and impressions or pulp extirpations are done under general anesthesia.

All excavations on one side of the mouth are completed first. The operator must accommodate to working on a prone patient, (Fig. 6). Finger positions and finger rests differ from the normal procedure, but cavity preparations are the same as in routine operative treatment. After all the excavations are completed, cement is placed in all necessary teeth and all preparations on that side are now completed. If amalgam fillings are required, all bands are placed and the amalgam is inserted in all the cavities at once, and with the use of an automatic amalgam plugger are condensed at one time. After preliminary carving of the amalgams, the mouth is closed to check the occlusion, and the carvings are completed.

Anterior fillings should be of silicate and on insertion should be held by clips thus allowing the operator to do other work, until the silicate has set. After one side of the mouth has been completed, the other side is treated in the same fashion. The operator has found a great time saver in storing prepared amalgam and zinc oxy-phosphate cement by the same method employed at the Guggenheim Dental Clinic. This method consists of preparing the amalgam and cement beforehand and placing them on frozen carbon dioxide blocks in an insulated container. This will enable the operator to have a ready source of material throughout the case.

Full denture impressions and washes may be taken on those patients who are severe gaggers. A centric bite is a simple matter since the patient is in a state of complete relaxation.

Where gold inlay, full crown, or porcelain jacket preparation are indicated, the teeth are prepared and compound impressions are taken. A plaster core is taken, but a thin mix must be avoided in order to prevent flowing. The mouth is then closed to obtain a wax bite.

Pulpotomies are performed in the usual manner with the exception that rubber dam is unnecessary. Where complete pulpectomy is required, pulp extirpation and some filing of the canal is done under anesthesia, with temporary dressings placed in the canals. As in the case with inlay or crown restorations, the root canal therapy is completed by the general practitioner.

The final procedure to be completed is the removal of those teeth beyond salvation. The sockets are packed with large sterile gauze pads leaving a corner of the pad extruding from the mouth. These packings are removed in the recovery room after the patient regains consciousness.

POST-OPERATIVE PROCEDURE

At the termination of the case, as a safety precaution, the physician performs a laryngoscopy before and after extubation. The patient is then placed in a recovery room under adequate supervision. The recovery room should be equipped with oxygen and suction machinery. The length of time for the procedure takes from one to two hours, depending on the case. A post-anesthetic checkup is given by the physician in the recovery room before the patient is allowed to leave. The necessity of using a qualified medical anesthesiologist is self evident.

The procedure described herein presents a unique, safe, and complete solution to the problem of those patients unable to undergo routine dental treatment. It should be understood that in many instances, this procedure may serve as the stimulus for the transformation of the unmanageable patient into the manageable one.

Effective planning, management, and treatment of the unmanageable patient is a problem which must be overcome. It is, therefore, necessary that Dentistry be cognizant of the medical, psychological, and technical aspects involved, and the use of the most efficient procedures and beneficial attitudes at its disposal.

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CURA DENTAL PRO PATIENTES REPRESENTANTE PROBLEMAS SPECIAL

Dr. chir. dent. Jerry J. Adelson, Dr. med. Frank E. Fierro, e Dr. med. Howard Berger

SUMMARIO IN INTERLINGUA

In su practica general le dentista incontra varie typos de individuos qui presenta problemas special de maneamento. Inter illes il ha casos de retardation mental, de impedimentos physic, e de disturbation emotional. Le sequente procedimento es recommendate como curso complete in le tractamento dental de patientes qui non es maneabile per le methodos del practica dental normal.

Examine Physic Pre-Operative.—Ante que le tractamento o mesmo le diagnose es comenciate, le medico del patiente deberea executar un complete examine physic. Le pre-medication es administrate un hora ante le tractamento. Le patiente es anesthesiate per le anesthesiologo in un de varie manieras secundo su etate e le duration de su caso. [Vide figs. 2, 3, 4.] Figura 3 monstra le induction de anesthesia per medio de un joculo. Le agentes anesthetic es oxydo nitrose, oxygeno super ethere pro infantes, e pentothal de natrium in conjunction con anesthesia a inhalation pro adultos.

Tractamento Operative.—Quando le stabilitate del stato anesthesiate es certe, un examine clinic e roentgenographic pote esser executate mesmo in casos de nonmaneabilitate complete. Le expositiones radiographic es executate per medio de un bandage al capite e un supporto del placa. [Vide fig. 5.] Le tractamento dental es comenciate post le completion del tractamento periodontal que es possibilemente etiam necessari. Un latere del bucca es excavate, preparate, e plumbate. Post le completion de un latere del bucca le altere latere es completate del mesme maniera. [Vide fig. 6] Le integre tractamento es completate in un session con le exception de restaurationes auree e del therapia del canal del radice.

Tractamento Post-Operative.—Post que le integre bucca es completate, le patiente es placiate in un camera de recuperation ubi ille debe esser tenite sub supervigilantia adequate. Il es importante que un fonte de oxygeno sia promptemente disponibile. Ante que le patiente es discargate e re-inviate a su domicilio, ille deberea esser examinate de nove per le medico.

Le procedimento hic describite representa un solution complete, non-riscose, e unic del problema de patientes dental qui non pote esser subjicite al routine del tractamento normal.

THE RELATIONSHIP OF ENDOCRINOLOGY TO DENTAL MEDICINE*

NORMAN G. SCHNEEBERG, M.D.†

Malfunction of the endocrine system not uncommonly induces disturbances of the teeth, of other structures in the oral cavity, and the contiguous osseous structures which may be so striking and important as to be diagnostic of the underlying endocrinopathy. The alert, informed dentist and oral surgeon may be the first to call attention to the possibility of some disturbance in endocrine function. In some instances such sagacity may be life-saving as in the case of Addison's disease (i.e., failure of the adrenal cortex) where a simple dental procedure in an unprepared patient can provoke a fatal crisis.

The endocrine system consists of several small glandular structures whose products or "hormones" are secreted into the circulating blood and exert very important regulating actions upon the total cellular physiology. Though it is necessary, for purposes of clarity, to discuss them separately, we must be clearly cognizant of the very complex interrelationships of the various endocrine organs upon each other.

PARATHYROID GLANDS

Since the parathyroid glands are most intimately related to calcium and phosphorus metabolism, I shall discuss them first. They are four tiny pea-size structures imbedded in the posterior part of the thyroid gland in the neck. They produce the parathyroid hormone which influences calcium and phosphorus metabolism, and bone structure. If these organs are removed, the serum calcium falls from a level usually of about 10 milligrams per 100 cc. of blood to 5 or 6 mg. In order for normal neuromuscular function to proceed in the human organism, there must be an adequate milieu of ionizable calcium. When this is deficient, neuromuscular irritability ensues accompanied by muscle cramps, paresthesias and eventually severe muscle contractions called tetany.

If the parathyroid glands are removed from an experimental animal, calcification in the dentine does not occur. When an extract of the parathyroid gland, parathormone, is injected, calcification in dentine occurs, and when the injections are stopped, another uncalcified zone results. Thus parathyroid hormone is essential for calcification of the dentine.

If we transpose this information to the human, we can understand that in children hypoparathyroidism is going to interfere with tooth calcification and aplasia and hypoplasia of the teeth will occur at that point in the development of the teeth at which parathyroid hormone deprivation occurred.

One other change that we see in parathyroid hormone deprivation is a thickening of the bone. The parathyroid hormone is responsible for osteoclasis, the breaking down of bone. Bone is not a static organ, but is in a continuous state of building up and breaking down similar to other tissues. The parathyroid tends to control a great deal of the breaking-down process and if the parathyroid hormone is not present, this normal osteoclastic activity does not proceed. Therefore, the bone continues to be built up and may be greatly thickened, and this may be first noticed in dental radiographs if the dentist is alert to the possibility of this occurrence.

The treatment of hypoparathyroidism consists of raising the blood calcium to a normal level with vitamin D or one of its derivatives, such as dihydrotachysterol (A.T. 10).

In contradistinction to a situation where we do not have enough parathyroid hormone, we may have a condition where too much parathyroid hormone is produced. If the parathyroid glands are involved in tumor formation, that is, adenomatous formation of the parathyroid, we may have a condition that we call

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hyperparathyroidism. Here the serum calcium is elevated; the serum phosphorus, of course, is always low. It varies reciprocally with the serum calcium so that when the calcium is elevated, the phosphorus is lowered.

An excessive mobilization of bone will continue (osteoclasis), so that the skeleton will become decalcified, the bones will become thin, and there will be the production of bone cysts and giant cell tumors of bone or osteoclastoma.

It seems that teeth, once calcified, cannot be decalcified. There is no distinct aberration in the structure of the tooth itself but decalcification of the mandible and alveolar process may provide a sharp contrast that should alert the dentist to the possibility of hyperparathyroidism.

Absence of the lamina propria is a striking aberration that the dentist may be the first to note. In hyperparathyroidism, and particularly only in hyperparathyroidism, although we can't make this statement unequivocably, the lamina propria is absent; so that in a dental film whenever we find an absence of the lamina propria, we should expect to find a very severe decalcifying disease of the skeleton, most likely hyperparathyroidism.

Another finding that should alert the dentist to the possibility of hyperparathyroidism, is finding a solitary cyst in the mandible. This very likely is due to hyperparathyroidism, although there are many other causes of cystic disease of the mandible.

The treatment of hyperparathyroidism is to remove the hyperplastic parathyroid glands or adenoma if present. If there is diffuse hyperplasia of all the parathyroids, removal of about 95 per cent of parathyroid tissue will usually cure the disease.

THYROID GLAND

The thyroid gland is a bilobal or H-shaped structure, situated in the neck anterior to the larynx and trachea, which produces a hormone that is protein in nature, called thyroxine. Thyroxine has a very diffuse effect on the metabolic processes, on energy exchange, on growth, on development and differentiation of tissues. A deficiency of thyroxine will cause a disturbance in the proliferation of the odontogenic epithelium, with the resultant malposition of tooth papillae and inhibition of eruption of teeth. The thyroid hormone is probably the most important hormonal factor concerned with tooth development. If the thyroid gland fails to function in the fetus in utero, due to aplasia or atrophy, the child that is born may exhibit characteristics that we call cretinism.

In cretinism, there is coarsening of the features, an infantile lack of development of the bridge of the nose, and a rather stupid, vacuous expression. These children are mentally retarded and dwarfed. There is often an umbilical hernia and a rather squat position of the legs. The skin is pallid, often has a yellowish, pale gray or grayish color, and is very dry. These children are very sensitive to cold. There are many other distinctive and striking findings that we will not take time to describe.

The dentist will find delayed retarded dentition and occlusal defects in cases of cretinism. The deciduous teeth erupt late and are retained far beyond the normal time of shedding, and the permanent teeth are late in making an appearance. The delay in formation of tooth buds is probably even more important than retardation in the eruption of the teeth.

It has been said (and I have seen it in many text-books) that dental caries is much more common in cretins than it is in normal children. Recent studies have tended to show this is not true. Dental caries should be no more common in the cretin than in any other child, so merely finding excessive caries in a young child does not necessarily point to the possibility of hypothyroidism in that child.

When thyroid failure occurs a little later in life, we call it juvenile hypothyroidism, and of course it will depend upon the age the disease begins as to which teeth are involved. Only those teeth that are in a stage of development will be affected by the onset of hypothyroidism but dentition will begin to be delayed at the point at which the individual is deprived of thyroid hormone.

The later in childhood that thyroid hormone deprivation occurs, the less involvement of the teeth there will be. If it occurs in the adolescent, the teeth may not be involved at all.

The thyroid hormone, as well as having an effect on the teeth, has a parallel effect on the structure of the bone, particularly on the bone growth lines, the epiphyseal lines. In the normal growth of bone the epiphyseal cartilage shows a central discrete zone of calcification and calcification then proceeds peripherally in an orderly manner resulting in lengthening of the bone shaft. In the cretin, there is a delay in the appearance of calcification, and instead of appearing first in a central discrete area and developing concentrically therefrom, it develops in numerous small irregular areas, as scattered foci of development. Then these gradually very irregularly coalesce to form an irregular center called epiphyseal dysgenesis or stippled epiphyses.

HYPERTHYROIDISM

Just as in hypoparathyroidism we have its antithesis, hyperparathyroidism, so hypothyroidism has its antithesis in the over-production of the thyroid hormone, known as hyperthyroidism. In this thyroid aberration the patient exhibits a high basal metabolic rate, rapid pulse and elevated blood-pressure. Despite a good intake of food, there is loss of weight and the individual becomes weak and fatigued, shows marked nervousness, tremulousness, heat sensitivity and excessive sweating. The cilinical picture is very easy to recognize. One of the most striking findings, and the one the dentist may be the first one to recognize if the patient is not cognizant of the fact that he is suffering from hyperthyroidism, is exophthalmos, or proptosis of the eye globes.

Hyperthyroidism has no direct effect on adult teeth except insofar as malnutrition or avitaminosis may produce changes because these individuals cannot seem to eat enough to keep up with their metabolic needs. They are continually losing weight and must take a tremendous supplement of vitamins in order to prevent a vitamin deficinecy. Vitamin deficiencies may be relatively common in long standing hyperthyroidism and may have an effect on the gingiva and on the teeth.

In children, hyperthyroidism is rather rare but when it does occur, it has a stimulating effect on growth as well as on dentition, which may be manifest in early loss of the deciduous teeth, and early eruption and growth of the permanent teeth.

ADRENAL CORTEX

The next endocrine gland we will discuss is the adrenal cortex. We have all heard a great deal about these organs since the remarkable report by Hench in 1949 and this can truly be called the adrenal decade.

The adrenals are perched astride each kidney and produce a myriad of steroid hormones which have very specific effects and may be roughly divided into three catergories. The first are hormones that affect the salt and water metabolism of the body. If an organism is deprived of the salt and water metabolism hormones (mineralocorticoids) a tremendous loss of salt in the urine occurs and the individual becomes dehydrated, shows a low blood-pressure, and will deteriorate into a shock like state called Addisonian crisis.

The second group of steroid hormones are like cortisone, the hormone so widely used in medicine today. These substances have very diffuse metabolic effects, particularly on fat, carbohydrate and protein metabolism, on antibody formation, and so on.

The third group of hormones are the androgens, substances similar to testosterone, which have anabolic effects on protein metabolism and tend to counteract the tendency of the second group that I mentioned, the cortisone-like group, to cause a loss of protein from the body. They also have a specific effect, as far as we know, on the growth of axillary hair. In the absence of these hormones, axillary hair falls out and does not regrow.

ADDISON'S DISEASE

As far as diseases of the adrenal cortex are concerned, there are two main groups. The first are due to a lack of adrenal cortical hormone. A rather dramatic clinical picture is produced and was first described by Thomas Addison in 1855 and since known as Addison's Disease. How can the dentist become suspicious that such a condition exists? The patient

whose adrenal cortex is underfunctioning or lacking in function will show diffuse pigmentation frequently of the entire body or the appearance of freckles. The patient may often complain that the summer tan from one particular year when the disease appeared never disappeared; and then if careful examination is carried out, characteristic pigmentation of the oral and buccal mucosa may occur and the tongue may exhibit pigmentation. The patient complains of weakness, fatigue, anorexia and weight loss and the blood-pressure is low.

Why is it important that Addison's disease be recognized so rapidly by the dental practitioner before he carrries out any particular dental procedures? We know that patients with Addison's disease do not tolerate drugs well, nor do they withstand the effects of sedatives and opiates. They do not tolerate anesthetics well and if not prepared with proper therapy may react unfavorably to as simple a dental procedure as an extraction. It requires very careful planning to carry out any dental procedure in a patient with Addison's disease, and generally it is preferably carried out in the hospital. The patients are usually prepared a day or even forty-eight hours before, with adrenal cortical hormones, usually cortisone. The material is given in relatively large doses the day of the procedure and then often for twenty-four, forty-eight hours or longer after the procedure is over.

The difference between a patient with Addison's disease and a normal individual undergoing anesthesia for any type of dental surgery is that the normal individual has plenty of these adrenal hormones to pour out to protect him from the stressful effects of drugs, anesthesia and surgery, whereas the patient with Addison's disease has practically none and therefore must receive artificial support.

It is essential that preoperative sedation be given in very small quantities or omitted altogether. When the anesthetic is given it is very important that plenty of oxygen be administered and that shock be prevented. If there is any evidence that shock is developing, emergency procedures must be carried out immediately.

Patients with Addison's disease withstand dental procedures well, but we always approach each problem with more care than one exercises in the preparation of a non-Addisonian individual for major abdominal or thoracic surgery. The brittle nature of the stress defenses of those individuals must never be forgotten.

One other factor that may help in the diagnosis of Addison's disease is the very marked dental caries that characteristically occurs. The hygiene of the mouth must be cared for meticulously by the patient. Gingivitis is extremely common in patients with Addison's disease. It is rare to find an untreated patient with Addison's disease whose teeth are not full of cavities and who does not have gingivitis.

In contradistinction to failure of the adrenal cortex, we also see pathological conditions where too much of these adrenal cortical hormones are being produced. There are two types; one, where too much of the male type of sex hormone is produced; hormones like testosterone that I mentioned as one of the three large groups that the adrenal cortex produces. Here, in brief, a picture of virilization is produced. We may see a child at birth, usually a female, having a greatly hypertrophied clitoris which may be mistaken for a penis and genital structures resembling a scrotum and the individual be mistaken for a male and raised as a male when actually, we are dealing with a case of female speudo-hermaphroditism.

If it occurs later in life, a normal female will begin to show atrophy of the breasts, lack of menstruation, loss of feminine body contours, the general picture of masculine characteristics appearing, growth of a beard, deepening of the voice, and so forth.

CUSHING'S DISEASE

The second type of condition that we see in hyperadrenocortical states is Cushing's disease. If you can picture an individual who has been receiving tremendous doses of cortisone and has developed all of the phenomena of overdosage of cortisone, you have the clinical picture of Cushing's syndrome. One finds hypertension, truncal obesity, a rounded "moon-face," mild hirsutism, marked protuberance of

the abdomen, striae, ecchymoses particularly over the legs, prominent venules, rubor of the skin, especially of the face, a cervico-dorsal fat pad and marked lumbar lordosis. The blood-pressure is generally elevated.

Patients with Cushing's disease, like the patient with Addison's disease, must be treated very carefully as far as the administration of drugs, anesthesia, and the performance of any type of oral surgery, except when these patients have had treatment or have been prepared for surgery. We must be very wary in treating patients with abnormalities particularly of the adrenal cortex because of the possibility of provoking a fatal crisis. In addition, in Cushing's disease we frequently have high blood pressure and heart disease to contend with.

Now turning to the gonads, the ovary and testicle, do they have any relationship at all to dentistry and to oral surgery? We do see a condition that we call precocious puberty in both the female and male. We won't take time to go into them in great detail but in precocious puberty in the female, we may find the onset of breast development and menstruation at 1 or 2 years of age, There may be an acceleration of dentition although that is not an invariable finding. If the skeleton matures rapidly the teeth will mature rapidly too.

In pregnancy, lactation, and puberty, an increase in caries has been described, and it has been felt by many writers that this is due to endocrine disturbances. A relative deficiency of calcium, resorption of calcium and other erroneous concepts have been set forth in attempting to explain why there seems to be an increased incidence of caries. Now we know that the teeth do not participate in decalcifying disease, and there has been other evidence accumulated in recent years to suggest that pregnancy does not increase the incidence of caries.

There are certain characteristic endocrine produced or hormonally induced gingival changes that, as one member of the society mentioned, make a diagnosis of pregnancy possible. The hypertrophy of the gingiva and perhaps a bluish-red color that may be present in the gingiva and in the gingival mucosa, may be due to an enormous increase of estrogens coupled with abnormal gingival sensitivity that seems to occur with pregnancy. Ziskin was able to produce gingival hyperplasia in monkeys by the injection of estrogens, so that since estrogens are being produced in tremendous quantities in pregnancy, they are probably responsible for hypertrophic and color changes in the gingival tissue.

PITUITARY GLAND

The pituitary gland resides in the sella turcica beneath the brain, and is one of the most important of the endocrine organs because if it is removed the adrenal cortex, the thyroid, the ovary and the testicle will atrophy. We will have a picture of failure of the adrenal cortex, failure of the thyroid with hypothyroidism, and lack of development of the secondary sex organs. The maturation of the skeleton in pituitary failure before full growth has been attained will be markedly retarded and the epiphyses may remain ununited for years after puberty, and often permanently.

If pituitary insufficiency develops in immature children, there is going to be great retardation not only in skeletal development and epiphyseal development but also in development of the teeth. Tooth eruption is greatly delayed and may cease entirely and normal tooth formation is interfered with. The tooth may be dwarfed, and may be tiny. The dental age of the pituitary dwarf, and by that we mean an individual dwarfed because the pituitary has not functioned, it has been destroyed and the normal growth hormone which the pituitary gland produces is not being produced —is so greatly retarded that the deciduous teeth may be retained into the third and fourth decade, and the very small hypoplastic jaws become crowded with half-erupted permanent teeth mingled with temporary teeth.

ACROMEGALY

The final condition that I want to mention before closing is one that you may have become familiar with because it is one of the commoner endocrine diseases. In this disease the pituitary gland becomes hyperfunctioning, a condition that we call acromegaly. It is caused

by an oversecretion of growth hormone, usually from an eosinophilic tumor of the anterior pituitary gland. If this tumor appears before puberty, growth will be tremendously stimulated and we will have a giant. If it occurs after skeletal maturation has been completed and after the epiphyses close, the bones cannot grow in length, they can only spread in thickness or in circumference. Here we have a picture of a large prognathic jaw, with severe malocclusion and separation of the teeth which will be found due to jaw hypertrophy and a heaping up of the alveolar arches. The skull becomes generally enlarged and the supraorbital ridges and the external occipital protuberances may become very prominent with enlargement of the sinuses. The mastoids exhibit marked hyperpneumatization. The hands and feet increase in size and the fingers become sausage-shaped and bulbous. The nose and ears become enlarged and the features become greatly coarsened. The mucosa of the oral cavity may become greatly hypertrophied and the tongue will often become so large that it will protrude between the teeth. The pituitary tumor, by local expansion, may cause an interference in vision, usually bitemporal hemianopsia and sometimes signs of increased intracranial pressure.

The reason that acromegaly is of some importance to the dentist is that during the active stage of the disease these individuals can tolerate any type of procedure. But during the later stages of acromegaly, the so-called "burned-out" stage, where the tumor is no longer overproducing growth hormone but has grown large enough to choke out all other elements of pituitary function, these individuals may and usually do develop pituitary insufficiency. They, like the individual with Addison's disease, will suffer a lack of adrenocortical hormones secondary to pituitary failure. Dental procedures in patients of this type can only be carried out when they are protected with adequate hormonal therapy.

I hope that this survey of the effects of certain of the endocrine diseases on the teeth may prove to be of some aid in alerting the dentist to the early detection of these conditions so that a patient may be properly prepared by his physician before undergoing any phase of dental treatment.

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RELATION INTER ENDOCRINOLOGIA E MEDICINA DENTAL

Dr. med. Norman G. Schneeberg

SUMMARIO IN INTERLINGUA

Dysfunctionamento endocrin resulta non infrequentemente in affectiones del dentes, del cavitate oral, e del contigue structura ossee. Per recognoscer certe signos pathognomonic il es frequentemente possibile pro le alerte dentista de esser le primo qui suspecta le presentia de un endocrinopathia causal. In certe serie morbos endocrin — per exemplo le morbo de Addison, le syndrome de Cushing, e insufficientia pituitari—un prompte diagnose e therapia pote salvar le vita del patiente. Le incaute administration de anestheticos in tal casos pote provocar un serie stato de choc e le morte del patiente. Le bon effectos de prompte diagnoses es le plus dramaticamente

apparente in casos de cretinismo e hypothyroidismo juvenil ubi un judiciose therapia pote resultar in le rehabilitation complete de un individuo physica- e mentalmente retardate. Le dentista pote ben esser le primo qui suspecta le correcte diagnose per notar le defectos occlusional e le retardate dentation que es un tracto characteristic in casos de dysfunctionamento del glandula thyroide ante parto e durante le infantia. Le dentista pote notar cystos mandibular e le absentia del lamina dur e attribuer iste defectos correctemente a hyperparathyroidismo; ille pote attribuer pigmentation buccal a morbo de Addison, le spatiamento excessive del dentes e prognathismo a acromegalia, e retardate dentation con retention prolongate del dentes decidue a hypopituitarismo.

"HOURLY WAGES" OF PHYSICIANS AND DENTISTS

The recent series of articles in the *Journal of the American Dental Association* summarizing the results of a survey conducted by its Bureau of Economic Research and Statistics of the hours, incomes, and other aspects of dental practice indicates that the average work week of the dentist in 1952 was 43.3 hours.* The 1950 survey of the dental profession set the average at 42.2 hours. The Bureau of Medical Economic Research of the American Medical Association reviewed the data on hours worked by the physicians, furnished by 30,000 physicians in the survey of their 1949 incomes; this survey was conducted jointly by the Bureau and the United States Department of Commerce, but neither has published the data on hours worked. Physicians averaged more than 56 hours a week, general practitioners more than 60 hours, and some specialists, 50 to 56 hours. It is interesting to compare the hourly earnings of dentists and physicians by distributing the net annual earnings over the number of hours worked, with the number of hours computed according to prevailing practices of large employers in the United States regarding overtime pay. Usually, the employer allows 12 hours' pay for the first 8 hours in excess of 40 hours a week and 16 hours' pay for the second 8-hour overtime period; that is, employees receive 68 hours of pay for 56 hours of work. On this basis, the average "hourly wage" of physicians was $3.13 in 1949 and, on the basis of small sample studies of the U. S. Department of Commerce, $3.26 in 1950 and $3.54 in 1951. The comparable "hourly wage" of dentists was $3.01, $3.12, and $3.31. These averages were computed on the basis of 68 hours a week for physicians and 45 hours a week for dentists. The annual net earnings were prorated over 52 weeks, although self-employed physicians and dentists worked fewer than 52 weeks. For the purpose of comparing their hourly earnings with those of employed persons, however, it is necessary to allow several weeks for vacation, holidays, and sick leave. As a matter of fact, office employees at A.M.A. headquarters are allowed approximately 25 days, or 5 weeks a year, for vacation, holidays, and sick leave. Incidentally, there is evidence that physicians work more regularly on holidays than do dentists. Even if the annual net earnings were prorated over 49 weeks instead of 52 the 1951 "hourly wages" would be increased only from $3.54 to $3.75 for physicians and from $3.31 to $3.51 for dentists. Within this frame of reference of prevailing rules regarding overtime pay, it appears that physicians and dentists are earning less than $4 an hour and that the long work week, particularly of physicians, should be a major factor in any economic analysis of professional incomes.

* Editorials and Comments, J.A.M.A., Oct. 2, 1954, p. 502.

PUBLIC HEALTH ASPECTS OF PERIODONTICS*

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INTRODUCTION

"To respect my profession, my reputation and myself. To be honest and fair with my patients as I expect my patients to be honest and fair with me; . . .

"To base my expectations of reward on a solid foundation of service rendered; to be willing to pay the price in honest effort. . . .

"To remember that success lies within myself, in my own brain, my own ambition, my own courage and determination. To expect difficulties and force my way through them; to convert hard experience into capital for future struggles. . . .

"To make a study of the professional and business sides of Dentistry."

These excerpts from the Dentist's Creed provide the professional atmosphere within which the subject of public health aspects of Periodontics will be discussed.

It would seem that an appropriate manner of beginnning such a discussion would be to establish a common basis of understanding. Definitions of fundamental terms are, therefore, in order.

Health is defined as a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity.

Public Health encompasses those activities, primarily a community responsibility, that are undertaken for the prevention of disease, the prolonging of life and the promotion of physical and mental efficiency.

It is significant to note that as a factor in public health, dental diseases received little or no emphasis in the prescientific era around 1800. Community action with respect to dental disease was neither advocated nor instituted at that time. The scientific era was ushered in by the work of Miller, the observations of Hunter, the Mayos and Osler and the researches of Howe, McCollum and Mellanby. Together with the works of other men there was a slow awakening to the importance of dental health as a part of general health.

Today, the widened scope of modern dentistry presupposes a concern not only with restoration of lost tooth structure, but also with care of the supporting tissues of the teeth and the oral mucosa in both health and disease. The inter-relationships of medical and dental diseases demand of the dentist much basic knowledge of disease processes. Of especial importance is the role of periodontics in dentistry, since periodontics is that specialty of dental science which is concerned with the study, prevention and treatment of diseases of the supporting tissues of the teeth. Specialty status is accorded periodontics because it is a well organized body of knowledge and requires a high degree of skill in performance. A closer look at this understanding of periodontics, however, discloses the fact that there are some techniques of this specialty which are integral and essential parts of the everyday practice of general dentistry, and these do not satisfy those requirements of a separate body of knowledge which necessitates understanding and practice only by highly skilled and specially trained technicians.

One other concept appears to merit some delineation in this introductory statement. The acknowledgment that dentistry is a scientific profession with social aspects is relatively new, and as yet, has not received universal approbation. The general or specialized practice of dentistry is not simply an activity in determinative perception, nor is it merely a measure of curative aptitude. It requires in addition, a profound appreciation of each dental patient as a distinct personality, a member of a family and living in a locality which may have an effect on his general health. Dentistry and its specialties will progress in proportion to the realization of this idea.

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PERIODONTAL DISEASE — A PUBLIC HEALTH PROBLEM

It is this image of the social aspects of the profession which poses the question as to whether or not periodontal disease is a public health problem.

In an address before the Association of American Medical Colleges in 1939, Dr. John A. Kolmer pointed out that dental disease is of vital concern to public health and preventive medicine since it usually began in early childhood, was not self-limiting, and attacked almost 100 percent of the population of this country. Moreover, he observed that dental disease was frequently responsible for much ill health, and pointed out that dental services were necessarily expensive.

The prevalence of dental diseases is further complicated by the insufficiency of personnel to render adequate care to all of the public. The time needed for dental treatment and the necessity for periodic repetition of dental care throughout life, are added difficulties which need to be overcome.

Periodontal disease is a chronic ailment. That some form of periodontal disease affects the community as a whole is a fact which has been revealed by clinical observation and epidemiological studies, inadequate as many of these may have been. Probably more than any form of dental disease, periodontal disease may and does have injurious effects in other remote areas of the body. There are prevalent opinions that periodontal disease possibly initiates, and probably aggravates some systemic diseases. The mouth is the body's major avenue of entrance for bacteria. As a matter of fact, the likelihood of protection of bacteria in periodontal pockets is very great indeed.

In a statistical study to determine the primary causes of tooth loss, Allen reported that caries and periodontal disease accounted for 92.62 percent of teeth lost in individuals over age 35. These findings were similar to those of Brekhus. When it is recognized that periodontal diseases constitute an injury to health and are a major cause of tooth loss, it is not an exaggeration to state that upon the condition of the periodontium depend, to a great degree, the health and retention of the teeth and the resistance of the oral tissues. Impairment of these organs will have deleterious effects upon the digestion of food. The adverse mental effects resulting from unesthetic appearances are factors which have been minimized in the past, but are being more and more envisaged as powerful potentials for psychic trauma.

Chronicity, wide prevalence and high cost of care, these are among the factors which support the contention that certain phases of peridontics constitute a public health problem. It is especially in the phases of etiology, diagnosis, epidemiology, treatment and prevention of periodontal diseases that there would appear to be positive public health relationships, and it is to these relationships that attention will now be directed.

PUBLIC HEALTH ASPECTS OF DIAGNOSIS, ETIOLOGY AND TREATMENT

Periodontal diagnosis embraces those clinical and laboratory procedures necessary to disclose the distinctive nature of the disease by its symptoms. The symptoms which a disease process presents are actual clues which the diagnostician must use in piecing together the whole story.

It is by no means idealistic to believe that it is the sacred duty of dentists to examine carefully the entire mouth of each patient. It is no longer sufficient to look only at the teeth.

Upon the dentist's recognition of incipient carcinoma or venereal diseases or metabolic disturbances depends the immediate referral to a source of corrective therapy. The consequences of delayed, inadequate diagnosis are the uninterrupted progression of cellular growth, tissue destruction, systemic invasion and ultimate death. The spread of many infectious diseases, if the latter are recognized or properly diagnosed by any member of the health team, could be reduced significantly. Just how important these observations are to the periodontist is readily recognized when it is understood that perhaps more than any other dental specialty which contributes to complete oral rehabilitation, periodontics is intimately associated with preventive dentistry, wholly dependent upon oral

diagnosis, and vitally concerned with dental therapeutics. As important units of the health team, periodontists in particular, and dentists in general—must look beyond the teeth if they are to assume the full responsibilities and obligations of public health to which they are committed by their own pledge of honesty and fairness to patients.

As complicated as are the relationships of systemic factors to the etiology of periodontal disease, and as few as have been the clinical and laboratory investigations under controlled conditions to determine the nature of these relationships, it can hardly be denied that systemic factors do influence the health of the periodontal tissues and the course of periodontal disease.

Calculus, oral habits, mouth breathing, inadequate interproximal contact, irritating effects of poor restorations, malposition of teeth and occlusal trauma represent some of the local etiologic factors of periodontal disease. Their correction and the reinstitution of normal physiologic appearance and function of the periodontium are the ultimate objectives of therapy. However, the attainment of these objectives is frequently a difficult procedure since there are such a large number of factors involved. Many of these factors are not too well understood so that it is necessary for the periodontist to use much ingenuity in evaluating therapeutic procedures and arriving at a plan of operation for a particular case. The indications and contra-indications for such procedures as subgingival curettage and gingivectomy, splinting, tooth replacement, drugs, occlusal adjustments, orthodontic procedures, diet therapy and oral hygiene are dependent upon the characteristics of each patient.

The treatment of some types of periodontal disease is, therefore, a technical function of the specific dentist, whether general practitioner or specialist. There can be no mass application of technical procedures in periodontal therapeusis. The unit of operation is a single person necessitating individuality of treatment by a particular clinician. The epidemiologist considers the community as the unit of operation.

The metabolic activity of the cellular elements in the periodontal tissues influences the reaction of the latter to irritative stimuli. It is, therefore, most necessary to have an efficient performance of this activity. The necessary nutrients assist in maintaining optimum activity so that proper foods with a sufficiency of vitamins and minerals are indispensable.

Dietary regimen, role of endocrines, debilitating diseases, oral hygiene, the effects of chemical irritants, home care and the role of smoking in ulceromembranous gingivitis are factors which lend themselves to the public health educational approach. In a very real sense, their correction can be developed as an educational responsibility, requiring community wide health educational effort.

It is essential to say a word about communicability of periodontal disease. Among the organisms which are sheltered in periodontal pockets may be those which are the causative agents of some communicable disease. The myth of communicability of acute necrotizing gingivitis has been disproved because of the failure of the disease to fulfil Koch's postulates. This has been summed up in the report by the American Dental Association's Research Commission which indicated that this form of periodontal disease is probably not communicable. Rosebury felt that necrotizing gingivitis should be regarded as being infective, transmissible under limited conditions and apparently not communicable. Schwartzmann and Grossman's study disproved the communicability of this disease. Schluger believes the disease is not transmissible by ordinary means of contact. Lapira reported an outbreak of ulcerative conditions in Malta. There was strong evidence of dietary predisposing causes for the stomatitis.

On the other hand, acute herpetic gingivostomatitis caused by the herpes simplex virus is a form of periodontal disease that can be transmitted from person to person, and would therefore have definite public health implications. These implications are also pertinent in cases where there are oral manifestations of such communicable diseases as tuberculosis, syphilis, diphtheria and actinomycosis. Measures for controlling and preventing the spread of these diseases depend greatly upon the general public's acceptance of an administration's regulative au-

thority. The need for reasonable governing methods must be fully understood before the public will foster or support the methods. This is just where education plays a most important role. It is indispensable in any program where the public is expected to utilize control and preventive devices.

PREVENTION OF DISEASE AND MAINTENANCE OF HEALTH

People are entitled to the benefits of preventive dentistry as an essential of over-all preventive medical care.

The prevention of periodontal disease together with the maintenance of health of the periodontal tissues are the two most important areas of periodontics with public health implications.

To be effective, a program of prevention must be based upon a thorough knowledge of causative factors and epidemiological characteristics. A recapitulation of the local and systemic etiological factors in periodontal disease indicates that whosoever is responsible for care and maintenance must be thoroughly versed in recognizing, not only the conditions themselves, but also the factors which predispose to periodontal disease. Education, therefore, looms as the major consideration. Certainly periodontists must be specially trained, but it is just as important that other dentists, dental hygienists, physicians and nurses should be educated about care and prevention of periodontal disease. They must be taught that the instructional status of the individual is an important predisposing factor of periodontal disease.

Health workers must foster periodic dental examinations. Moreover, they must be taught why it is essential to emphasize home care. Health workers must then play a major role in seeing that this information is passed on to the public.

A word of caution seems necessary in this matter of health education. There is still with us the situation in which there has been built up a great public demand for dental care. This demand has been stimulated to a point where it has far outstripped the ability of the public to pay for it conveniently. The sustained uproar for health program legislation is the result of eager work by overzealous dental health educators. The word of caution is directed to those who would now stimulate unlimited clamorings of the public for periodontal care.

If the health education passed on to the public is bolstered by an increased availability of periodontal care and an insistence upon the fostering of periodontal research, then there is a great likelihood that some periodontal care will eventually be made available to all. That there are only about 300 certified periodontists among America's more than 90,000 dentists is a cause for some concern, but not for feelings of hopeful helplessness. The recognition that some forms of periodontal care are administered to by the majority of dental practitioners is an encouraging observation.

EPIDEMIOLOGY AND OCCURRENCE OF PERIODONTAL DISEASE

Ever since examination of ancient skulls showed that diseases affecting the supporting tissues of the teeth were as old as the history of man, scientists have been interested in ascertaining the percentages and types of people affected, the locations in which the affectations occurred, the classification or sort of periodontal diseases differentiated, the climates or seasons during which these diseases were most rampant and the reasons for the characteristics peculiar to varying types. The methods of obtaining this information form the basis of the science of epidemiology which Frost has defined as "the science which considers the occurrence, distribution and types of diseases of mankind, in distinct epochs of time, at varying points on the earth's surface and secondly, will render an account of the relations of these diseases to inherent characteristics of the individual, and to the external conditions surrounding him and determining his manner of life."

Some gingival diseases and the milder forms of periodontal disease are prevalent in the approximately 33 million children of the United States. Generally speaking, however, it is recognized that periodontal disease is a disease of adulthood. The large bulk of incipient and moderately advanced periodontal disease, there-

fore, would occur in the age groups 18 to 44. The more advanced cases, which may or may not be amenable to treatment would occur in the age group of 45 and over. Conservative estimates would place about 60 million people (or 45 percent United States population) in age group 18-44, and 40 million people (or 30 percent United States population) in age group 45 and over. The question of caring for the periodontal needs in more than 75 percent of the population is projected as a major issue, especially when it is realized that the American public is receiving only a fraction of the dental care needed.

The complexities of the epidemiological characteristics of periodontal diseases are in need of study, and even though the works of King, Schour and Massler, Sheppard and Marshall-Day are significant, careful research is required to develop sound indexes which can be utilized in evaluating the incidence and prevalence of periodontal disease, and the level of periodontal health in individuals and in population groups.

The information which these epidemiologic studies will elicit can be applied profitably in the prevention and clinical management of periodontal disease, and in the plannings for the more effective distribution of periodontal care as a contribution to improvement of the dental health of the public.

GENERAL CONSIDERATIONS IN PERIODONTAL ECONOMICS

It is precisely in the area of dental economics that dentists may find themselves either influenced by the philosophies of the Creed, or totally oblivious to its underlying portent. It is in this area where honesty and fairness to patients becomes pitted against honesty and fairness of patients; where studies of the business side of dentistry may be influenced by the whims of a particular student; or where the conversion of hard experience into capital may sometimes be accomplished at the expense, and most assuredly to the detriment of the patient.

The ramifications of demand for periodontal care, cost of periodontal treatment and need for periodontal services are as intricate as are similar considerations in dental care. Accurate information on these phases, however, is a basic necessity and the intelligence of program planning for periodontology would be reflected in proportion to the degree of accuracy of data on demand, cost and need. At the present time there is not available any actual measure of the demand for periodontal care. Doubtlessly, the effective demand which is defined as the desire plus ability to obtain periodontal services, is a mere fraction of the potential demand which is defined as the demand that would exist if there were removed all barriers such as available facilities, personnel and costs.

The desire for periodontal care is frequently thwarted and unfavorably influenced by the still prevalent attitude about hopeless prognosis of periodontally involved teeth. Such an attitude will lessen the potential demand for periodontal care.

With regard to costs of periodontal care, here again the situation is most unsatisfactory since specific cost figures are unavailable. That cost will influence both demand and need is, of course, evident. A large portion of dental neglect can be attributed to costs of dental care. The fees obtained for different types of periodontal treatment effected by a variety of periodontists would probably range from one extreme to the other. However, it is true that periodontal care would not generally command the fees that prosthodontics would, in proportion to the amount of operator time consumed.

The determination of need for periodontal care, also, has its difficulties, but an analysis of periodontal needs is indispensable to any consideration of the manner in which limited funds and personnel might best be utilized in planning a health program. We must know the amount of need for periodontal care in the mouths of the public at this time, just as we should have some idea of the number of new periodontal defects which develop within a year or some such definitive period of time. Adequate periodontal care would lessen the amount of need while the number of new periodontal defects will be more or less conditional upon daily care, habits or other specific etiologic factors, and less dependent upon periodontal service rendered.

A final word about personnel would seem necessary inasmuch as availability of operators is another barrier to requests for periodontal care. The training of a large number of peridontists is, of course, essential. This can be done if there is inspired a greater interest in periodontology. Admittedly, this is a difficult procedure in the face of the glamour of oral surgery and the economics of prosthodontia; nevertheless, since the expectation and circumvention of difficulties comprise another of the philosophies of the Creed to which we have pledged eternal support, ways must be found to surmount this obstacle. It would seem that groups like the Philadelphia Society of Periodontology could well serve such purposes by frowning upon the aura of proud, smug selectivity with which so many specialized groups are wont to invest themselves. Instead, these societies could foster and expand programs dedicated to the task of making other dentists aware of the responsibilities of this specialty. In addition, such organizations could inspirit more periodontal practice among the general practitioners and should encourage more general practitioners to specialize in periodontology. The promotion of periodontal research and surveys to elicit more information about needs, costs and demands are added areas of operation.

SUMMARY AND CONCLUSION

In summary, the public health aspects of periodontics have been discussed. It has been necessary to define certain fundamental terms appertaining thereto. The following statements are significant:

1. Dentistry is a scientific profession with social aspects. It requires the appreciation of each dental patient as a distinct personality.
2. Some form of periodontal disease affects the community as a whole. This circumstance makes the disease a public health problem.
3. Perhaps more than any other dental specialty, periodontics is closely related to preventive dentistry, oral diagnosis and dental therapeutics.
4. The prevention of periodontal disease and maintenance of health of the periodontium are two most important areas of periodontics with public health implications.
5. A program of prevention must be based upon thorough knowledge of causative factors and epidemiological characteristics.
6. Health workers must foster periodic dental examinations and must see that adequate dental information is passed on to the public.
7. There is a need for the development of valid indexes for determining incidence and prevalence of periodontal disease.
8. Methods of controlling those periodontal diseases which may be communicable are dependent upon the education of the community.
9. People are entitled to the benefits of preventive dentistry as an essential of overall preventive medical care.
10. The question of caring for periodontal needs in 75 percent of the United States population is a major issue.
11. Accurate information about demand, cost and need of periodontal care is necessary for meaningful program planning.
12. Specialty societies should make general practitioners aware of the responsibilities of a particular specialty, and should promote periodontal research and surveys.

These concepts which have been discussed are all part and parcel of the basic philosophy of dentistry. Deep meditation on the Creed and a determination to abide by it will assist in the ultimate fulfillment of the pledge to respect the profession and to act always as a guardian of its heritage. It is an experience in humility to realize that all of these things have been set forth so well and so simply in the Creed:

"To think of Dentistry with loyalty, speak of it with praise, and act always as a custodian of its good name. To be a man whose word carries weight with my fellow citizens; . . . To believe in my profession heart and soul. Finally, to take a good grip on the joy

of life, to play the game like a gentleman; to fight against nothing so hard as my own weaknesses; and to endeavor to grow as a dentist and as a man with the passage of every day of time."

May I be permitted to add: "And during these ominous times, to rededicate myself to those honest and sincere principles upon which dentistry has progressed and won for itself a place of dignity, respect and admiration among the medical sciences." THIS IS MY CREED.

Veterans Hospital
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PERIODONTOLOGIA DEL PUNCTO DE VISTA DEL SANITATE PUBLIC

Dr. chir. dent. Clifton O. Dummett (F.A.P.H.A., F.A.A.A.S.)

SUMMARIO IN INTERLINGUA

Le presente articulo es concernite con le aspectos del campo periodontic que es significative ab le puncto de vista del sanitate public. Le sequente observationes es importante:

(1) Dentisteria es un profession scientific que ha complexe aspectos social. Iilo require ab su adeptos que illes recognosce e evaluta cata unde lor patientes como personalitate individual.

(2) Un o altere forma de morbo periodontic affice le communitate in su totalitate. Iste facto establi periodontia como problema de sanitate public.

(3) Es valide pro le disciplina periodontic—plus forsan que pro qualcunque altere specialitate dental—le observation que illo es intimenente connectite con dentisteria preventive, diagnose oral, e therapeutica dental.

(4) Le prevention de morbo periodontic e le mantenentia del periodontio in bon sanitate es duo del plus importante problemas periodontologic con implicationes ab le puncto de vista del sanitate public.

(5) Un programma preventive debe esser basate super le plus exacte cognoscentia del factores causal e del characteristicas epidemiologic.

(6) Le personal del servicios de sanitate public debe promover le principio de examines dental a intervallos regular e cargar se del responsabilitate pro que adequate informationes dental es impartite al publico.

(7) Un urgente desiderato es le disveloppamento de valide indices del frequentia e severitate del morbo periodontic.

(8) Le methodos del lucta contra ille morbos periodontic que pote devenir contagiose depende in lor efficacia del education del publico.

(9) Le publico ha le derecto de beneficiar de dentisteria preventive como elemento essential de medicina preventive in general. In le Statos Unite le requirimentos de cura periodontic non es adequatemente providite pro 70 pro cento del population. Iste facto remane un problema major.

(10) Exacte information in re le demanda, le costo, e le necessitate de tractamentos periodontic es un premissa indispensabile pro omne plano programmatic a signification practic.

(11) Societates de specialistas periodontic deberea informar le dentista a practica general del signification de lor specialitate. Illos deberea promover recerca periodontic e studios statistic in lor campo.

EXTENSION COURSE FOR DENTAL ASSISTANTS

The American Dental Assistants Association in a recent meeting in Miami approved the course plan of the University of North Carolina Extension Division. This correspondence course with twenty-five lesson assignments permits the dental assistant to accomplish study and exercises at home and at the office laboratory. The course is designed to be a challenge to the newcomer as well as the veteran dental assistant, and it was developed through the cooperation of the Dental Assistants Committee of the North Carolina Dental Society and faculty at the University. More than 100 girls now are pursuing the course, thereby satisfying the educational requirements in preparation for the Certification Examination of the American Dental Assistants Association. The tuition, including all materials from the Extension Division, is $50.00. Further information may be secured or enrollment may be accomplished by writing the Extension Division, University of North Carolina, Box 1050, Chapel Hill, North Carolina.

The Officers and Board of Trustees of the American Academy of Dental Medicine extend to its members and friends

SEASONS GREETINGS AND BEST WISHES

for a happy, healthy, and prosperous New Year.

Medical Views on Oral Problems

THRUSH IN HOSPITAL NURSERY*

TO THE EDITOR:—I wish to add a comment on your answer to the query on thrush in THE JOURNAL, June 5, 1954, page 620. There exists a therapy that is less messy to the nursery linen and the baby. Keeney reported. (Bull. Johns Hopkins Hosp. 78:333, 1946) a treatment for thrush with sodium caprylate. I confirmed his work and reported it with Persky (A. M. A. Arch. Pediat. 68:33 [Jan.] 1951). We have used it at the Kern General Hospital for four years with excellent results and no disclorations, which gentian violet always gives. We used a 10% solution on the patients with mild disease and a 20% solution on the patients with stubborn disease. In patients with heavy plaques on the tongue, rubbing the tongue firmly three times a day with a cotton swab dipped in 20% acqueous solution of sodium caprylate will clear the lesions in three to four days. The Strasenburgh Company, Rochester, N. Y., was the source of supply for these solutions.

Robert Cohen, M.D., 2413 Niles St.
Bakersfield, Calif.

* Queries and Minor Notes, J.A.M.A., Aug. 21, 1954, p. 1548.

THE ROLE OF THE MUSCLES IN THE ETIOLOGY OF HEADACHE*

Marmion calls attention to a common causative factor in headache, which is frequently overlooked. Every physician is familiar with the sustained spasm of muscles in the region of an injured joint or over an inflamed viscus, but many forget that the same reflex spasm may occur as a result of painful lesions of the head and neck and that this spasm may in itself give rise to further pain. The general increase in muscular tone that accompanies emotional tension, anxiety, and apprehension is common knowledge, but the significance of this mechanism as a cause of headache is often forgotten. Prolonged muscular contraction about the head and neck may result from many causes—reflex spasm secondary to migraine or other headache, sinusitis, pharyngitis, otalgia, ocular disease, adenitis, arteritis, or lesions of mouth, teeth, jaws, skull, or cervical spine, disorders of the muscle itself, such as fibrositis, sprains, bruises, and scars; physiological disturbances of muscular action and ballance, that is, faulty or unaccustomed posture and fatigue; neurological conditions, for instance, neuritis, neuralgia, pressure on nerves, many intracranial conditions (meningitis, posterior fossa tumor), tetanus, etc.; and emotional tension. The author presents the histories of eight patients to illustrate the more important features of muscular headache. While it is impossible to change a patient's obsessional or worrying temperament, much can be done to help him acquire the right attitude toward these things. Instruction in relaxation is important. Local application of heat, massage, manipulation, and active exercises help to relieve muscle spasm and disperse fibrositic nodules. Injections of procaine into painful spots are sometimes effective in breaking a vicious circle of pain-spasm-pain. Mild sedation help relaxation, and specific muscle relaxants such as mephensin (Myanesin) have also been used for this purpose.

* Medical Literature Abstracts, J.A.M.A., Aug. 21, 1954, p. 1530.

ERYTHEMA MULTIFORME BULLOSUM FOLLOWING PHENYLBUTZONE TREATMENT FOR ARTHRITIS: REPORT OF FATAL CASE*

Cone and associates present the history of a woman, aged 44, in whom erythema multiforme bullosum developed as the result of a sensitivity reaction to phenylbutazone (Butazolidin). The patient had been given 50 (100 mg.) tablets of phenylbutazone to be taken over a two week period, after salicylates, vitamins, and a two week course of cortisone produced only transient benefit. She was first seen at an outpatient department five days after she had completed taking the 50 tablets of phenylbutazone Her arthritic symptoms had improved, but she had vesicular lesions of the mouth and conjunctivitis. Treatment with the solicylates and diphenhydramine (Benadryl) hydrochloride was instituted, but on the following day a generalized skin eruption developed for which she was hospitalized. Further questioning revealed a history of urticaria following thyroid medication seven years previously, nausea following sulfadiazine, and "dizziness, breathlessness, and depression" following large amounts of acetylsalicylic acid. On one occasion after a penicillin injection, she "turned purple"; subsequent penicillin therapy caused no difficulty. In addition to acetylsalicylic acid, she was given crystalline procaine penicillin G (Crysticillin), 300,000 units intramuscularly every 12 hours. This was discontinued on the second day to determine whether the persistent temperature elevation might be related to its use. The temperature remained elevated, and penicillin was restarted on the 12th hospital day. Despite progressive improvement in her skin condition, the patient continued to have a febrile course. In addition to corticotropin, cortisone, oxytetracycline, and penicillin, she received plasma, whole blood, protein hydrolysates, and intravenous injections of fructose and potassium. Locally she was treated with potassium permanganate baths, dilute silver nitrate

baths, methylrosaniline chloride (gentian violet), and petrolatum U.S.P. (Vaseline) gauze. She became more and more toxic and died on the 14th hospital day. The authors feel that the postmorten findings of probable micrococcic septicemia with almost no polymorphonuclear response point up the importance of vigorous antibiotic therapy in this type of case. The cause of death was probably a septic toxemia secondary to bacteremia. The current belief that a drug eruption resulting from phenylbutazone will clear spontaneously with discontinuance of the medication or with administration of antihistaminics and/or adrenal steroids did not prove true in this case. The authors feel that the increasing number and severity of reactions to phenylbutazone, and the absence of conclusive evidence of its specificity in rheumatic disorders, warrant a careful reconsideration of the use of this drug.

* Medical Literature Abstracts, J.A.M.A., Sept. 25, 1954, p. 454.

MONILIA INFECTION OF THE GUMS*

TO THE EDITOR:—*Please advise me about treatment of yeast infection of gums. I have treated a patient one year with gentian violet, 1% solution. What other measures should I try?*

Maurice R. Williamson, M.D., Alton, Ill.

This inquiry was referred to three consultants whose respective replies follow—ED.

ANSWER.—The age of the patient, the clinical findings, or the basis for the diagnosis of "yeast infection of the gums" are not stated in the query. It would be unusual to find the lesions of a monilial infection limited to the gingival tissues. It should be first ascertained that there are no sources of traumatic irritation that might predispose to a chronic gingivitis. These might include trauma to the gingival tissues resulting from calculus, inadequate dental restorations, malposed teeth, or occlusal overfunction. Improper oral hygiene habits may also be a predisposing cause. The above conditions, if present, should be checked and corrected by the patient's dentist. If the yeast infection still persists the topical application of 10% aqueous sodium caprylate solution may be effective.

ANSWER.—It is assumed that the case in reference is associated with Monilia. Monilia infection of the gums primarily is extremely rare. Mostly the oral moniliosis is associated with generalized moniliosis. In many cases of generalized moniliosis some debilitating preexisting disease is present. There is no recommended treatment of any value. Gentian violet appears to minimize secondary infection. In all cases of a chronic nature, a thorough search for systemic disease must be made.

ANSWER.—In view of the length of time for which the condition has been resistant to a form of treatment that usually brings about remission in one or two weeks, diagnostic tests should be repeated to determine whether this is a case of moniliasis. For the treatment of moniliasis, authorities in the field of oral medicine recommend topical application of 1% gentian violet solution three times a day after meals. The correspondent did not indicate whether this schedule was followed. Other forms of therapy that have been reported to be beneficial in some cases include x-ray and ultraviolet irradiation, a high vitamin diet reinforced with vitamin A up to 150,000 units daily, massive does (100,000 units daily) of calciferol, and saturated solution of potassium iodide up to 20 drops thrice daily. "Shotgun" vitamin therapy, however, has no scientifically sound basis, and prolonged administration of large does of vitamins A and D_2 is not without hazard from hypervitaminosis. Radiation should not be resorted to unless all other methods fail. If the lesions are sponged with a 10% solution of sodium sulfite, the fungus may more readily be scraped off; care should be taken to avoid bleeding during this procedure. Application of gentian violet solution may then be undertaken thrice daily after meals. Propionate or caprylate preparations are of value in the control of vaginal moniliasis, and they might be used in the present case on a trial basis before drastic measures are undertaken.

* Queries & Minor Notes, J.A.M.A., Oct. 9, 1954, p. 668.

ARGYRIA: REPORT OF TWO CASES*

Two patients with argyria were referred for investigation because of cyanosis ascribed to heart disease. The first patient, a woman, aged 24, was referred because of bluish tinting of the skin for an opinion with regard to the possible relationship to a systolic murmur audible at the mitral area. There was no breathlessness, cough, or palpitation. She had had celiac disease between the ages of 2½ and 11 years, and during part of this time she was treated with silver nitrate by mouth. She had been told that she was given fairly large amounts. Some time after the institution of this treatment, her skin and gums became very dark. Examination of chest, abdomen, and nervous system revealed no abnormality. In the second woman, aged 56, bluish-grey pigmentation of the skin had been present for about 14 years. For some years she had suffered from shortness of breath on exertion, and a tentative diagnosis of valvular disease of the heart and hypertension had been made. The possibility of cyanosis being due to arteriovenous shunt was raised. Tinting of skin and nails had begun in 1938, and questioning elicited the information that she had begun to use 10% silver proteinate (Argyrol) nose drops in 1936 and had continued to use them since. Pigmentation had fluctuated in intensity but never disappeared; it had become deeper over the past three and a half years. No radiological evidence of calcification of aortic valve was obtained. Electrocardiographic changes were indicative of posterior and lateral coronary artery insufficiency. Both patients were advised not to use silver preparations, but

no other treatment was given, since the literature proved that all suggested remedies had proved ineffective. The authors feel that these cases serve as reminders that argyria should be considered as a possible cause of bluish skin pigmentation of obscure origin.

* Medical Literature Abstracts, J.A.M.A., May 22, 1954, p. 406.

VITAMIN C DEFICIENCY IN ADOLESCENTS*

Boys and girls 13 and 14 years old "hit rock bottom" in vitamin C intake, finds Pauline Beery Mack (Texas State College for Women). A survey of the food intake of 2,554 children and 2,195 adults disclosed not only that teen-agers lacked vitamin C in the diet, but that "this critical age was low also in consumption of total calories as well as in high quality protein and all of the major vitamins and minerals." Dietary deficiency of vitamin C, demonstrated by low blood-plasma levels, was prevalent at all ages, more so in males. Some 63 per cent of the boys and 25 per cent of the girls aged 13 and 14 had less than half the vitamin C recommended by the Food and Nutrition Board, National Research Council.

Dean Mack attributes the unusual prevalence of deficiency in the teen years to the habit of between-meal snacks that provide calories but inadequate vitamins, minerals and proteins. She conducted a controlled study comparing resistance to fatigue when orange juice and a nonnutritive beverage were given before breakfast to 124 children, 10 to 19 years old. In tests involving speed, accuracy and stamina, a significantly better showing was made by the children taking orange juice.

* Reported at the Conference on Research in Nutrition and Medicine, Lakeland, Fla.

REGIMEN FOR MAXILLARY SINUSITIS*

A therapeutic routine for isolated maxillary sinusitis is outlined by Walter P. Work (Department of Otorhinolaryngology, Stanford Medical School).

In acute maxillary sinus infections no manipulation should be done upon the sinus. The patient should be put to bed, hot packs used, cultures taken and antimicrobial drugs started. Irrigations are done later only if needed.

In chronic maxillary sinusitis antimicrobial drugs should be employed, and, in addition, the sinus should be irrigated with saline or Ringer's solution every 4 to 5 days. This routine is carried out for 3 weeks.

If these measures fail in chronic sinusitis, surgery is the only effective recourse: usually the most conservative procedure is employed in conjunction with antimicrobial therapy. If the more conservative surgery — polypectomies, submucus resections, antrum windows — fails, then the Caldwell-Luc procedure is carried out. Predisposing factors such as allergy must be treated concomitantly.

* Reported at a meeting of the Dallas Southern Clinical Society.

DRUG ABSORPTION IN MOUTH*

TO THE EDITOR:—Ergotamine tartrate and caffeine can be absorbed from mucous membrane. Because many patients with migraine or tension headaches are too nauseated to tolerate these drugs by mouth, and because it is difficult to arrange for administration of ergotamine tartrate hypodermically at the onset of an attack, it has been advised that they be administered rectally. This was first suggested in 1894 by Thomson, who used tincture of ergot for "perodic neuralgia of the head." More recently the use of these drugs has been reported in the form of suppositories or tablets (Cafergot). I wish to call attention to a much more satisfactory procedure in these cases. The patient is instructed to break the tablets (Cafergot) between his teeth and allow them to be absorbed from the area between the teeth and cheek. The tablets have a moderately bitter taste, but patients with severe headaches seldom complain of this. I have used the buccal absorption route successfully in many patients who do not respond well to ergotamine tartrate and caffeine when they are swallowed, probably because of poor absorption from the gastric mucosa. In patients with even slight nausea associated with headache and in those who have gastrointestinal distress on swallowing the drugs I prefer to use buccal absorption within 30 minutes of the onset of headache. Unless this is tried with such patients, an adequate therapeutic test has not been made.

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VA Mental Hygiene Clinic
1305 Franklin St., St., Oakland 12, Calif.

* Correspondence, J.A.M.A., Sept. 25, 1954, p. 448.

THRUSH*

TO THE EDITOR:—In regard to the query on thrush in THE JOURNAL, July 3, 1954, page 949, I had several cases of thrush last September that were confirmed bacteriologically. The patient responded promptly to application of polymyxin solution made by dissolving one tablet in 30 cc. of water. The solution was applied with a cotton applicator every two hours and prepared fresh twice daily. Most children were able to eat without pain the following day and were asymptomatic in two to five days.

J. W. McHenry, M.D., Havana, Ill.

* Queries & Minor Notes, J.A.M.A., Oct. 2, 1954, p. 574.

MANGO DERMATITIS*

Any patient who represents a perioral dermatitis during May, June, or July (the mango season) should be strongly suspected of having a reaction from the

peel of a mango. Persons who are sensitive to poison ivy have a greater susceptibility to this fruit. Such persons can eat the pulp but should not handle the unpeeled mango. Information regarding the possibility of mango dermatitis should be circulated to the general public. The irritant (cardol) is found in the sap on the outer peel of the mango. The pulp itself is not irritating, so that patients sensitive to the sap can safely eat the fruit.

* Clinical Notes, J.A.M.A., Nov. 6, 1954, p. 954.

INDUCTION OF TOOTH DEFECTS BY THERMAL SHOCK*

The large increase in incidence of tooth decay in the United States since the turn of the century has undoubtedly considerable connection with our changed eating habits. One of the changes in eating habits is that of eating intensely cold and hot foods at the same meal. The practice, for example, of eating piping hot food, serve at say 150° F, and a moment later taking a swallow of an iced drink, or vice versa, exposes the teeth to some thermal shock. One effect of thermal shocks on vitreous materials is to induce small cracks, which accelerate mechanical breakdown. In the case of teeth such small cracks could also furnish entrance sites for bacterial decay. How important is such thermal shock to the teeth?

To obtain a preliminary idea of how to attack the problem, a number of extracted healthy teeth free of fillings were subjected to repeated thermal shock, then subjected to a smashing action. A comparison was then made of the proportion of the teeth that survived the smashing with the proportion of teeth surviving that had not undergone thermal shock cycling. The test conditions chosen were extremely simple but severe and were intended only to indicate probable trends in tooth behavior.

From the original batch of 160 teeth, half were selected by a random manner as controls and half were subjected to 72 thermal shock cycles. The 80 teeth to be shocked were placed in a wire basket and alternately shifted from boiling water to ice water containing much finely cracked ice. Emphasis was placed on producing rapid temperature change in the teeth. The teeth were allowed to come to temperature and after 1 min were transferred rapidly to the other temperature bath. The control teeth were boiled for ¾ hour but were heated and cooled slowly to avoid thermal shock. A test was then made of the resistance of the two groups of teeth to fracturing. After sacrificing a few teeth to explore suitable crushing tests, a final comparison of the teeth begun. A flat-bottomed 6-lb. lead weight block was dropped from a height of 7 in. onto individual teeth as they lay on a hard concrete floor. The drop tests were done in alternating groups of 10 teeth from each large group. Of the control group, 11 out of the 50 broke; of the group given the 72 shock cycles, 21 of the 50 tested broke. The results suggest that thermal shock may promote cracks in teeth. Further work on this aspect of dental effects is indicated.

DOUGLAS G. and HERBERT A. POHL
1111 Rosedale Avenue, Wilmington, Delaware.

* Communications, Science Magazine, Nov. 12, 1954, p. 807.

CARDIAC AND NONCARDIAC CHEST PAIN*

Since chest pain is common in persons over 50 years of age, it is important to differentiate between that caused by coronary artery disease and that due to other causes. Certain differential criteria that have been emphasized in the past have been reexamined by various observers. Master and his associates[1] studied a series of 200 consecutive patients with chest pain, half of whom had abnormalities in their resting electrocardiogram. Of this group most were men over 50. The other half showed no abnormalities in their electrocardiogram or in a standard exercise test. Most of these were neurotic, and in none had heart disease developed in a subsequent four year follow-up. Most of this group also were men, and nearly half of them were over 50.

After an analysis of subjective symptoms the authors concluded that, although a constrictive type of pain was observed in many patients with coronary artery disease, it was absent in more than half of these and present in some members of the control group; that although the pain was substernal or precordial in many patients with heart disease it was similarly localized in almost as many patients in the control group; and that radiation of the pain was also not diagnostic. The onset of chest pain was related to effort in 91 per cent (not 100 per cent, as might be expected) of the cardiac group but was also observed in 34 per cent of the noncardiac group. Gylceryl trinitrate (nitroglycerin) gave no relief in 20 per cent of the cardiac group but did relieve over one-third of the noncardiac group. Glyceryl trinitrate did, however, relieve the cardiac chest pains more promptly and more completely than it did the noncardiac chest pains.

It is apparent from these findings that many patients with coronary artery disease do not present a textbook picture as regards their subjective symptoms and that in the noncardiac group there are many patients for whom a false diagnosis of coronary artery disease might be made on the basis of symptoms alone. Pains induced only by effort, emotions, or cold are almost always truly anginal. A detailed history of the characteristics of a chest pain will indicate the correct diagnosis in most cases, but in doubtful cases complete examinations and long observation are necessary to arrive at a diagnosis.

* Editorals and Comments, J.A.M.A., Nov. 13, 1954, p. 1085.

1. Master, A. M.; Jaffe, H. L., and Pordy, L.: Cardiac and Non-Cardiac Chest Pain, Ann. Int. Med. 41: 315-322 (Aug.) 1954.

EFFECT OF ASCORBIC ACID ON ANTI-Rh AGGLUTININS

A group of Venezuelan investigators, headed by M. Layrisse, investigating a number of agents for their effect on anti-Rh agglutinins during pregnancy, have found that cysteine, BAL and ascorbic acid exert a "neutralizing" effect upon the agglutinins in vitro. Layrisse and his colleagues have accordingly treated mothers who had a history of erythroblastotic infants and high agglutinin titer: 6 were given ascorbic acid orally in doses of 2.5 Gm. daily, and 1 was given cysteine as well. A fall in antibody titer was observed in all instances. Thus far 4 of the patients have delivered normal infants with negative Coombs tests and no clinical signs of erythroblastosis.

(Reported at the 5th International Congress of Hematology, Paris.)

PHYSICAL ACTIVITY AND CORONARY DISEASE

British studies relating to motor habits and arteriosclerotic heart disease have been surveyed by Percy Stocks. The over-all findings make a good case for a life of labor. Deaths certified as due to coronary disease or angina pectoris form a much smaller proportion of cardiovascular deaths among men of the laboring classes than among men in skilled occupations and professions. Early deaths from coronary occlusion are less frequent in bus conductors than in drivers, less in postmen than telephone operators.

Follow-up observation of pensioners from the first World War has revealed that men who had suffered the loss of a lower limb had a higher death rate from coronary disease than men who had other wounds. Fewer Cambridge graduates who had participated actively in sports died of cardiovascular disease than graduates who had not. Stocks suggests that continued habits of regular exercise such as walking may tend to prevent or postpone occlusion of large branches of the coronary arteries that are in the process of becoming atheromatous.

(Reported at the International Congress of Clinical Pathology, Washington, D. C.)

HEREDITARY PARALYSIS AGITANS*

Thirteen of the 24 members comprising three generations of a family presented symptoms of genuine paralysis agitans. There was no history of a preliminary encephalitic phase. As in the familial case reported in the literature, tremor was the first symptom. Inheritance seems to be dominant. The syndrome as a rule set in between the ages of 20 and 30 and took either a benign course, in which tremor was the sole symptom for years, or a more rapidly progressive course with development of a typical incapacitating Parkinsonism.

* H. Hove. Ugeskr. laeger 116:614-616 (April 22) 1954 (In Danish) [Copenhagen, Denmark].

RECURRENT APHTHOUS ULCERS*

TO THE EDITOR:—*Since a patient had infectious mononucleosis 10 years ago, he has had chronic recurrent episodes of herpes simplex involving his tongue, mouth, and throat. Is there anything of value as a prophylactic?*

Donald R. La Follette, M.D., New Albany, Ind.

ANSWER.—This is apparently a case of recurrent aphthous ulcers, which at times are exceedingly uncomfortable. The viral cause of this condition has not been proved. In particular, several careful studies have failed to prove that it is caused by the virus of herpes simplex (*J.A.M.A.* 142:125 [Jan. 14] 1950.) The herpes simplex virus cannot be isolated from the lesions, and the biopsy findings are not characteristic. Since a variety of hematological conditions sometimes give rise to various types of mouth lesions, it would probably be advisable for the questioner to have a complete hematological review. The precipitating causes of recurrent aphthous ulcers, as listed in various textbooks, are numerous, but it is rare that any specific exciting agent can be proved in the individual case. Nevertheless, it is worth while to review the history carefully in respect to foods and drugs, to determine whether or not any ingestant of this type is in any way related. Occasionally, aphthous ulcers may seem to be a secondary manifestation of a chain of events, occurring as a result of a gastrointestinal reaction primarily induced by some factor or other. Skin tests to determine possible sensitivities of this type are useless. Another factor that sometimes seems responsible, though difficult to prove definitely, is nervous tension and fatigue. No chemotherapeutic method has been demonstrated to have preventive effects in aphthous ulcers. There is no proof that repeated vaccination is of any value. It is possible that, if there are no contraindications, a short course of cortisone or corticotropin therapy, administered promptly at the onset of the symptoms of developing lesions, might be helpful. If it did not have to be repeated too frequently, such treatment should offer little risk.

* Queries & Minor Notes, J.A.M.A., Dec. 4, 1954, p. 1375.

Book Reviews

Doctors Are People, by W. Berg Mann, M.D. Vantage Press, New York, 1954, 83 pages.

This is a semi-fictional narrative of a doctor's experiences in medical practice in rural Canada and the U. S. The period, six years, (years of apprenticeship in the author's opinion) and the locale, have been condensed for the purpose of narrative. However, the author's purpose is to give, in his words, "a true picture of country practice" as he experienced it.

It presents the problems of a physician of limited training and experience attempting a difficult task under trying physicial and social conditions. It reduces these problems to simple and real terms in an effort to prove that "doctors are people," and as individuals humanly fallible and vulnerable. On the whole we must conclude with Dr. Bergmann that he acquitted himself in this trial with dignity and honor, and that he emerged finally with greater stature, if with more scars, than he entered. One must respect the courage of one who whose total previous surgical experience consisted in putting "two stitches in a cut on a man's right hand, of which feat I was extremely proud," and who had otherwise "never held a knife or surgical needle in my hand" performing an appendectomy on a five-year-old. The author's experiences in dentistry are equally interesting, and one can understand his relief in welcoming a dentist into the community. The author in his forward concludes, "A few years of country practice are just what I would order for a young doctor."

This is enjoyable and informative reading for lay and professional alike.

ARTHUR N. YOHAI

Periodontia (Clinical Pathology and Treatment of the Periodontal Tissues). Edward D. Coolidge and Maynard K. Hine, Lea and Febiger, Philadelphia, 1954. 384 pages, 424 illustrations on 250 figures, 2 color plates, $7.50.

The authors describe in a concise and systematic way the normal condition of the healthy soft tissue, and consider the gradual changes that occur from local irritation.

In this edition they have attempted to condense the extensive literature on periodontal disease into a rather compact volume. They have included a chapter on "Prevention of Dental Disease," and another on "Occlusal Equilibration," together with a detailed evaluation of the effects of overload on the affected periodontal structures. The authors stress the importance of toothbrushing in the maintenance of good oral health.

Doctors Coolidge and Hine reiterate and emphasize the wide spread manifestation of periodontal disease together with the enormous loss of teeth, thus affected.

As a ready reference for the dentist the text can be recommended.

Oral Surgery, by Sterling V. Mead; 4th edition; C. V. Mosby Co., St. Louis, 1954, 1478 pages, 872 text illustrations and 13 color plates, $25.00.

It is difficult to believe that any phase of oral surgery has escaped Dr. Mead's facile pen. Here is a broad, sweeping text covering 35 chapters, including allied specialties depending in part on surgical technics. Such fields as endodontia, periodontia, and orthodontia come in for their fair share of attention. Apicoectomy, periodontal surgery, and jaw resection are discussed, described, and illustrated in minute detail. Such helpful procedures as frenotomy and operations for deepening the gingival sulcus are clearly explained and are of inestimable value to both the general practitioner and specialists in allied fields.

Should the reader of this review feel that this is a text primarily for the oral surgeon, let him be assured that this is not the case. In this storehouse of information he will find, of course, much to carry him over the pitfalls of surgical problems. Step-by-step explanations carry him through the procedures of exodontia, simple and complicated, as well as other surgical problems. But herein, too, he will find books within a book on such subjects as diagnosis, inflammation, chemotherapy, anatomy, diseases of hard and soft tissues, physiotherapy, and diet and nutrition, to mention only a few. Such important, yet hard to find information, as suturing technics, emergency measures for syncope, shock, collapse, and the technic for emergency tracheotomy are included.

This text is an up to date and valuable addition to the library of every dental practitioner.

ALLAN N. ARVINS

Crown and Bridge Prosthesis, by Stanley D. Tylman, 3rd edition, C. V. Mosby Co., St. Louis, 1954, 1017 pages, 1364 text illustrations and 9 color plates, $16.00.

Dr. Tylman has included, in this new edition, a more complete discussion of the indirect technic in fixed bridge construction, recent research data on the physical properties of the hydrocolloids, waxes, and stones, and the latest findings on pulp reactions to temporary filling materials, sterilization of the tooth, and reaction of the pulp to heat and pressure.

Engineering problems as related to bridge construction are discussed in detail with accompanying draw-

ings illustrating the text. This chapter requires concentrated study but will reward the reader with a clearer concept of the stresses involved in the masticatory apparatus, both natural and artificial.

Throughout its 47 chapters this work is crammed full of technics for preparation, impression, casting, and assembling, etc., of bridges of all varieties. It is probably the most complete and up to date work on bridge prosthesis now on the bookseller's shelves.

ALLAN N. ARVINS

Oral Pathology, by Kurt H. Thoma, 4th edition; C. V. Mosby Co., St. Louis, 1954, 1536 pages, 1595 illustrations, 92 in color; $22.50.

In this fourth edition, Dr. Thoma has reorganized the Chapter on Dental Caries to include some 102 pages, with references covering 16 additional pages; a tremendous piece of research bringing up to date the most important views on the subject.

The chapters on experimental pathology have been eliminated, but other chapters now include findings resulting from animal experimentation.

This text is a veritable encyclopedia of dental knowledge. If a problem is remotely connected with oral pathology, somewhere within these pages a discussion on the subject can be found.

The publishers have done a grand job on the physical aspects of the book, the type is sharply defined and spaced for easy reading; the illustrations, with few exceptions, are especially fine.

It is difficult to outline even in part the wealth of material to be found in this work. Certainly for its description and illustrations of lesions, only occasionally or rarely seen, it is incomparable in its completeness.

Forty-four chapters include the spectrum of oral diseases and their treatment. This book is an outstanding example of the best in dental literature.

ALLAN N. ARVINS

Rontgendiagnostik des Schadels, by Willy Loepp and Reinhold Lorenz; Georg Thieme Publishing Co., Stuttgart, Germany, 1954, 579 pages, 613 illustrations, $23.25.

This is a book on roentgenography for all branches of medicine having an interest in the skull. In includes the child, the adult, the normal with its variations and the changes due to pathology. Infections, accidents, tumors, and congenital malformations all leave their mark on the cranium. The text includes all the diagnostic criteria of practical interest. The cranium and base of the cranium, zygoma, orbit, and teeth are described in detail. For the beginner, the detailed description of the roentgenographic anatomy of the skull will simplify his study of this book. The advanced student will appreciate the diagnostic description which should be of help in arriving at a diagnosis for his own patient.

It is unfortunate that for the most part the illustrations are negative photographs of the original roentgenograms which make it disconcerting to those used to viewing these transparencies directly by transillumination.

The text is in German.

ALLAN N. ARVINS

Fixed Partial Prosthesis, by Joseph E. Ewing, D.D.S., F.A.C.D., Lea & Febiger, Philadelphia, 208 pages, 482 illustrations, $6.00.

This textbook, in essence a laboratory manual of crown and bridge techniques, is surely a contribution to the field of fixed partial prosthesis. The extensive bibliography at the end of the book as well as the numerous credits in the preface reflect Dr. Ewing's diligent approach to the study of this subject.

Numerous crown and bridge procedures are presented and well illustrated. This is done in a series of sequential steps as an aid to clarity in teaching. In this respect, the author achieves admirable success.

Diagnostic considerations prior to restorative procedures are presented. Indications and contra-indications for various techniques are discussed at great length.

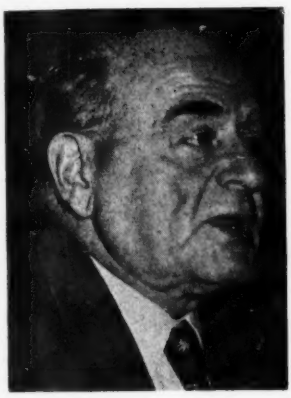
Aside from a great wealth of technical data so necessary for the student, there is ample material for the most experienced practitioner. The chapters on "Preliminary Radiographs And Clinical Diagnosis", "Periodontal Factors In Fixed Partial Prosthesis", and "Re-establishing Correct Vertical Relationship" can stimulate a tremendous desire for further study.

The information in this manual is practical and well organized and is highly recommended for the student and practitioner.

JULES N. OBIN

Academy Proceedings

MID-WINTER MEETING OUTSTANDING SUCCESS



DR. HARRY SICHER

DR. JOSEPH P. WEINMANN

DR. LESTER R. CAHN

More than 300 Academy members and their friends packed the Keystone Room of the Statler Hotel in New York City for the Mid-Winter Meeting of the American Academy of Dental Medicine. This large, enthusiastic audience witnessed the presentation of Honorary Membership to Dr. Raymond J. Nagle, Dean, New York University College of Dentistry by Academy President George F. Clarke.

The essayists for the afternoon included two physicians and a dentist. Dr. Harry Sicher, Professor and Head of the Department of Anatomy at the Dental School of Loyola University, and author of "Oral Anatomy", co-author of "Bone and Bones", discussed "Bone Formation and Resorption". He was followed by Dr. Joseph P. Weinmann, Professor of Pathology and Head of the Division of Oral Pathology, University of Illinois College of Dentistry and co-author of "Bone and Bones". Dr. Weinmann spoke on the "Variations in the Structure of Bone Tissue and Their Significance in Radiology". The final essayist of the afternoon was Dr. Lester R. Cahn, Associate Professor of Oral Pathology at Columbia University, Consultant in Oral Pathology to the Armed Forces Institute of Pathology, and Associate Editor of the Journal of Oral Medicine, Surgery, and Pathology. Dr. Cahn discussed the "Correlation between Clinical, Roentgenologic and Histologic Studies in Bone Lesions".

The presentations of these three essayists were excellent. They held the attention of this large audience for more than two and a half hours. Everyone agreed that this Mid-Winter Meeting was one of the most successful conventions the Academy has sponsored.

Chairman Norman Alderman, Co-Chairman Alex Soberman and their committee are to be congratulated for the excellent way in which this convention was managed.

DEAN NAGLE AWARDED HONORARY MEMBERSHIP

Dr. Raymond J. Nagle, Dean of New York University College of Dentistry is awarded honorary membership in the American Academy of Dental Medicine by Dr. George F. Clarke, Academy President, before the Mid-Winter Meeting at the Hotel Statler, New York City on Sunday, Dec. 5th, 1954. More than 300 Academy members and friends witnessed the presentation.

NINTH ANNUAL MEETING OF THE AMERICAN ACADEMY OF DENTAL MEDICINE

The Ninth Annual Meeting of the American Academy of Dental Medicine will be held at the Park Sheraton Hotel on May 13th, 14th and 15th, 1955.

This three day convention will include scientific sessions, luncheons, dinners, and a new social event, a dinner dance. An interesting ladies program is planned, and a guest speaker will discuss a topic of general interest.

The scientific program will feature Dr. Herbert S. Kupperman, New York University Bellevue Medical Center, who will discuss the "Stress Syndrome". Dr. Victor Witten of the Skin and Cancer Hospital, New York University Bellevue Medical Center, will discuss an aspect of dermatology. Drs. Albert L. Stunkard, and L. Hinkle, Jr., of Cornell Medical School and New York Hospital, will discuss the "Physiologic and Emotional Aspects of Stress as It Affects the Doctor and the Patient". The field of implant dentures will be covered by Dr. Isaih Lew who will show movies and patients having this type of restoration.

Plan now to attend the Ninth Annual Meeting in May.

GEORGE J. WITKIN, *Chairman*
S. LEONARD ROSENTHAL, *Co-Chairman*

FIVE ACADEMY PAST PRESIDENTS AT MID-WINTER MEETING

The Academy Past Presidents are all smiles because of our very successful Mid-Winter Meeting. (left to right) J. Lewis Blass, Sidney Sorrin, Samuel Charles Miller, George A. Bruns, and Louis R. Berman. The other Past President is Harold R. Gelhaar who is not included in this photograph.

MID-WINTER MEETING COMMITTEE

(left to right, bottom row) John F. Deveney, Alex Soberman, Co-Chairman; Norman E. Alderman, Chairman; and Chalmers Lyons.
(left to right, top row) Howard Ward, Harry Roth, Ira F. Ross, and Marvin Simring.

MONTREAL SECTION

The annual fall meeting of the Montreal Section of the American Academy of Dental Medicine was held on Saturday and Sunday, September 18th and 19th, 1954 at Mont Gabriel Club, Piedmont, Que. The meeting was attended by members and their wives and friends. Dr. George F. Clarke, National President of the Academy, was among those present. The scientific session was held on Saturday afternoon. The meeting was opened at 3 P.M. with Section President, Dr. Louis J. Rosen presiding. He introduced Dr. Gibson E. Craig, Lecturer in Dermatology at McGill University, who delivered an illustrated lecture on "The Dermatologist Looks at Oral Lesions."

A special business meeting was held on Sunday morning, September 19th. Dr. George F. Clarke extended the greetings of the Academy on his official visit to the Montreal Section. He stressed the need for a greater concentration of effort on behalf of both the parent body of the Academy and the sections toward making the aims of the Academy become realities.

Louis J. Rosen

ACADEMY TREASURER LECTURES IN CENTRAL AMERICA

Dr. George G. Stewart, treasurer of the American Academy of Dental Medicine, recently gave a five day course in Endodontia at the University of San Carlos in Guatemala City, Guatemala. The post graduate course consisted of lectures, conferences and demonstrations covering all phases of root canal therapy. At the conclusion of this five day course, Dr. Stewart was awarded the Honorary Degree of Professor from this famous old University.

Mrs. Stewart accompanied the doctor on this trip which included stop-overs in Mexico and Cuba.

MARYLAND SECTION

The Maryland section is continuing to function actively. On October 25, 1954, our Winter Meeting was held in Baltimore. Dr. Kyrle Preis, Professor of Orthodontics of the University of Maryland Dental School, gave an informal talk relating to his extensive trip in Europe and the various phases of dentistry which he observed in those countries.

Our membership committee is active in securing desirous material for the expansion of the section. Plans are now under way to include members of the Academy who reside in the District of Columbia in the Maryland Section.

DAVID H. WILLER

NEW YORK SECTION

The first of three New York section meetings for the 1954-1955 season was held on November 18, 1954, at the George Washington Hotel, New York City. Dr. Dominick Di Maio, Chief of the Pathology Department of the New York Polyclinic Medical School and Hospital, and Assistant Medical Examiner for the City of New York, gave a very interesting lecture on "Oral Pathology." Dr. Di Maio's discussion of oral pathology was supplemented with kodachrome slides.

On Thursday evening, January 27, 1955 the New York Section is privileged to have Dr. Frederick R. Maybell address its membership. Dr. Maybell is Adjutant Professor of Dermatology at New York Polyclinic Medical School and Hospital. He will discuss "Mucous Membrane Changes In the Oral Cavity." This meeting will be held at the George Washington Hotel, New York City at 8:00 P.M.

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1954-1955

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MASSACHUSETTS SECTION

The third dinner meeting of the 1954-1955 season of the Massachusetts Section was held in Worcester at the Hotel Sheraton on October 27, 1954. The president, Dr. John Goodridge of Lynn, presided. A report was given of the previous luncheon meeting held at the Hotel Statler, Boston, on May 3, 1954 at which time Dr. J. Lewis Blass of New York City was our clinician. Four applicants to our section were balloted on and their pre-application forms were accepted. Their application will be voted upon by the national body at the mid-winter meeting.

Dr. George Clarke, National President of the Academy, gave us a brief history of the development in dentristry from a purely mechanical approach to the bio-mechanical viewpoint which has been the aim of the American Academy of Dental Medicine.

Reidar Sognnae, D.M.D., Ph.D., Professor of Oral Pathology at Harvard Dental School, was the speaker for the third dinner meeting. His topic was "Present and Future Directions in Dental Research." At the conclusion of his address, an interesting discussion took place.

Our next meeting will be held on Sunday evening, February 6, 1955 at the Hotel Statler, Boston, in conjunction with the educational meeting of the Massachusetts Dental Society. An outstanding program is being planned by the Academy to supplement the educational meeting. Guests are welcome.

Earl Stone

NEW MEMBERS ELECTED—DECEMBER 5, 1954

Alloy, Jack
Philadelphia, Pa.

Berlove, Ira J.
New York, N. Y.

Burk, Freda Sale
New York, N. Y.

deBarros, Jorge J.
Sao Paulo, Brazil

Coen, Samuel E.
Springfield, Mass.

DeMirza, Francis A.
Miami, Florida

Emanuel, John
Brooklyn, N. Y.

Gelhaar, Earl A.
Grosse Pointe, Michigan

Goldstein, Marin
Atlanta, Georgia

Harriott, Richard C.
Watertown, Mass.

Jablonski, Joseph J.
Detroit, Michigan

Kozol, Solomon
Boston, Mass.

Lindblom, Gosta
Stockholm, Sweden

Nachbar, Stephan
Brooklyn, N. Y.

Nathanson, Irving G.
Boston, Massachusetts

Nivison, David J.
Detroit, Michigan

Ochsenbein, Cliff
Austin, Texas

Odenheimer, Kurt J.
Pittsburgh, Pennsylvania

Ratcliff, P. A.
San Bernardino, Calif.

Riego, Antonio
Manila, P. I.

Ring, H. Ray
Hackensack, N. J.

Salcedo, Nenita B.
Philippine Islands

Shangold, Alvin A.
Albany, N. Y.

Speed, Edwin M.
Birmingham, Alabama

Thibert, Joseph A. N.
Fitchburg, Mass.

Williams, Max M.
Royal Oak, Michigan

Wolfsohn, Bertram L.
San Francisco, Calif.

Zigelbaum, Eliot Lee
Framingham, Mass.

MONTREAL SECTION SPONSORS MEDICO-DENTAL MEETING

The Montreal Section of the American Academy of Dental Medicine is sponsoring a Medico-Dental meeting on Monday evening, January 31st, 1955 at 8:15 P.M. in the Assembly Hall of the Medical Building of McGill University.

This meeting will be in the form of a seminar in which seven physicians and dentists will participate. The panel will consist of: Dr. John W. Gerrie, Professor of Oral Surgery at McGill University and Director of the Department of Plastic Surgery at the Montreal General Hospital. Dr. Gerrie will act as moderator. Others on the panel will be Dr. Donald R. Webster, Professor of Surgery and Director of Experimental Surgical Laboratory at McGill University and Chief Surgeon of the Royal Victoria Hospital; Dr. Louis Lowenstein, Assistant Professor of Medicine at McGill University; Dr. Alberic Marin, Professor of Dermatology at the University of Montreal; Dr. A. Gerald Racey, Professor of Oral Pathology at the University of Montreal and Associate Professor of Oral Pathology at McGill University; Dr. Robert M. Wiener, Lecturer of General Pathology and Oral Surgery at McGill University; and Dr. Jean Paul Lussier, Professor of Dental Medicine at the University of Montreal.

The topic to be discussed will be "Physician and Dentist Meet the Patient."

Dr. Adelard Groulx, Director of Health for the City of Montreal, will participate in the discussion. Dr. Louis J. Rosen, President of the Montreal Section of the Academy will preside.

MICHIGAN SECTION

A meeting of the Michigan Section of the American Academy of Dental Medicine was held at the Hotel Statler in Detroit, on November 21, 1954. The dinner meeting was held in collaboration with the American Academy of Nutrition and was well represented by members of the Michigan section. Dr. Herman Becks, M.D., D.D.S., was the guest speaker. He is a Fellow of the American College of Dentists, a member of the American Academy of Dental Medicine, the American Academy of Nutrition, and a founder of the Institute of Dental Medicine. At present, he is Professor of Dental Medicine at the University of California.

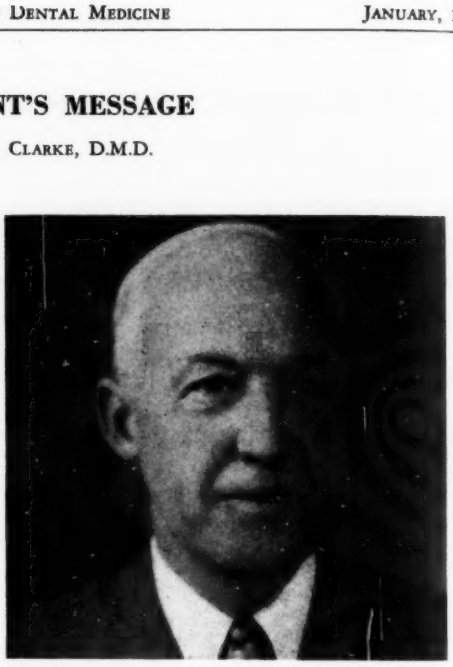
Dr. Becks gave a most interesting and instructive illustrated talk on "Oral Manifestations of Vitamin B Deficiencies". Among the highlights of his address was the discussion of nicotinic acid and pantothenic acid deficiencies.

Dr. Becks showed how dogs on a nicotinic acid deficiency type of diet developed a periodontitis similar to that in humans. He also showed how dogs on a pantothenic acid deficient diet developed an alveolar atrophy and resorption similar to that seen in periodontosis in humans.

HORTON D. KIMBALL

PRESIDENT'S MESSAGE

GEORGE F. CLARKE, D.M.D.



MY FELLOW MEMBERS—

I am going to talk to you about the Academy, its aims and purposes, and about Dentistry.

We have a proud heritage in Dentistry. All through the years we have kept abreast or ahead of our sister professions. Our patron saint, St. Appolonia, has indeed been good to us.

Our modern profession was born in 1840 with the consummation of three very important events. They were, the opening by Horace Hayden and Chapin Harris, of the first Dental College in the world, the Baltimore College of Dental Surgery; the forming of the American Society of Dental Surgery; and the printing of the first copy of the American Journal of Dental Surgery.

Godon, the great French dentist, describes these three events as "The tripod upon which the profession must be built if it is to be firmly established.

1. The School for the instruction of the future graduate.
2. The society, for the presentation of discussion new and old, and for fraternal intercourse.
3. The Journal, to disseminate knowledge, stimulate education, and a more general improvement by reaching a wider public.

Through the next century and more, Dentistry progressed and improved by the work and devotion of a group of dedicated men who gave their very lives for their profession. The great in Operative,—Arthur, Webb, Darley, Perry, Black.

In Prosthetics,—Cone, Bonwill, Snow, Williams, Gysi.

In Surgery,—Hulihen, Garretson, Brophy, Fillebrown.

These and many others developed a mechanical concept of Dentistry that has been improved upon but little today. I include surgery in this because surgery is a mechanical skill.

Now and then men appeared upon the scene who had a concept that we wish to have today, a biologic concept of Dentistry; but they received scant attention.

The group in Boston who founded the Massachusetts Dental Society had this concept when, in 1860, they applied to the Overseers of Harvard University, and petitioned them to start a school for Dentistry.

The organization of this school, in 1867, constituted an outstanding recognition by America's oldest university of the importance of Dentistry in the health program, lessened the influence of private schools, and committed the school to a policy of developing Dental Education on the same science subject basis as was used for Medicine. This had a profound effect upon other Universities and upon the public with respect to their attitudes toward dental education, and made this one of the most important landmarks in dental education. The school gave the degree of Doctor of Dental Medicine, the first time that such a degree had been given, and the first time that the words "Dental Medicine" were used in dental education.

This concept was completely new, not only to the dental profession, but also to the medical profession and the public. It took a long time for this idea to become generally accepted, for the mouth until very recently was considered as something apart from the human body, and needing only mechanical skills and abilities for its repair and rehabilitation.

About 1890, Miller and Billings came up with the idea of focal infection from the oral cavity, and received scant attention. In 1910, before the faculty of McGill University, in Montreal, Sir William Hunter brought out the story of septic dentistry—not a new concept—but it had the greatest impact on the dental profession. Hunter's concept has been found to be not completely true, and except for a rather unusual incident, would never have been heard of outside the halls of McGill. By some means, a popular magazine of the day, Current Literature, published a condensed version of Sir William's address. It created an uproar in the dental and medical professions.

The medical profession seized upon it as a cure for all ills, and we came into the great Edentu-

lous Era, when teeth and tonsils were indiscriminately removed on the slightest provocation. It was hard on the public, to be sure, for it did little good, and in many cases, untold harm.

The dental profession was aroused. I believe that this one event was the turning point in dentistry. It made dentists realize that they must know more about their patients, that they must be physicians of the mouth, not mechanics.

In 1870, Dr. John Riggs, of Hartford, Conn., developed a method of treatment of a hither-to incurable disease, generally called pyorrhea. For many years the disease was known as Rigg's disease.

During the years that followed, a few venturesome souls started to treat periodontal disease. They each had their own secret treatments, and they were to some degree successful. By 1915, they had organized the American Academy of Periodontology, a very successful and laudible effort. It is a fine organization, doing the work that it should do. But it still was not the answer to the problems of Dental Medicine, for it is of primary value to specialists. Specialists cannot solve the problem, for nearly every patient that comes into your office has some oral condition that needs attention.

Dentists started taking short courses trying to learn more about Dental Medicine, and they did learn. Many of them accomplished wonders in a short time. They took these courses on spare time, for most of them could not give up the responsibilities of a busy practice and a family to return to school for a one or two year course.

In the early 1940's it was realized that there was need for a meeting place for dentists who had this more advanced concept of the care of the oral cavity. For that reason, the American Academy of Dental Medicine was formed. A meeting place for general practitioner and specialist alike.

How well the Academy has succeeded, you know very well. Our growth in numbers, in enthusiasm, culturally, in the type of clinics we have, all show that this was something that was desperately needed.

Actually, the formation of the Academy of Dental Medicine ushered in a new era in Dentistry, and a new concept—dental care. It is aiding the public to better health, and helping the dentist take his place as the true physician of the mouth.

ACADEMY MEMBERS IN THE NEWS

Many of the members of the American Academy of Dental Medicine have distinguished themselves in the field of dentistry. From time to time it will be our pleasure to report the accomplishments of these men in the Journal of Dental Medicine providing we are made aware of their achievements.

Some of the Academy members who received their F.A.C.D. recently in Miami, Florida, are: M. B. Auerbach, Allan N. Arvins, Harold K. Addelston, Irving Abramson, Jack Englander, William M. Greenhut, and George J. Witkin. Our congratulations and best wishes to these men.

George A. Bruns of Revere, Mass., is serving as a District Governor of Rotary International for the 1954-55 fiscal year. Dr. Bruns leads thirty-two Rotary Clubs in one of five districts in Massachusetts. . . . Kurt J. Odenheimer of Pittsburgh, Pa., has recently been appointed head of General Pathology, and Acting Cancer Co-ordinator to coordinate all cancer instruction at the University of Pittsburgh School of Dentistry. . . . Congratulations to Past President Sidney Sorrin on the recent marriage of his son, Edward. . . . Reuben Feltman of Passaic, New Jersey, has just been elected a Fellow of the American Association for the Advancement of Science. . . . J. Lewis Blass was recently the leader in a "Workshop on Economic Trends in the Various Phases of Dentistry" before the New Jersey Section. . . . Samuel M. Robbins of Cleveland, Ohio, is forming a study club on Oral and Dental Medicine. All those residents of the Cleveland area who are interested in joining such a group should contact Dr. Robbins. . . . Samuel Charles Miller of New York, presented a half hour, closed circuit, color television clinic before the Greater New York Dental Meeting last month entitled, "Etiology and Instrumentation for Conservative Procedures." J. Lewis Blass and Marvin Simring followed with a half hour, color television clinic demonstrating "Splinting of Periodontally Involved Teeth."

Announcements

POSTGRADUATE TRAINING IN PERIODONTIA AND ORAL MEDICINE NEW YORK UNIVERSITY COLLEGE OF DENTISTRY

The following postgraduate courses in Periodontia and Oral Medicine will be offered at the New York University College of Dentistry and will be given by Dr. Samuel Charles Miller and Staff:

To acquire clinical skills associated with periodontal therapy as well as an awareness of some problems of periodontal pathology.

1. Three weeks, Full time, Daily.
   Monday through Friday, 9:30 A.M. to 4:00 P.M.
   June 6, 1955 to June 24, 1955.
   Tuition including books and instruments: $382.50.
   Class limited to 24.

For preparation towards specialization and teaching.

2. Two years, Full time, Daily.
   Monday through Friday, 9:00 A.M. to 4 P.M.
   September, 1955 to May, 1957.
   Tuition including books and instruments: $2150.50.
   Class limited to 6.
3. Four years, Half time, 2½ days weekly.
   September, 1955 to May, 1959.
   Tuition including books and instruments: 2150.50.
   Class limited to 6.

For comprehensive preparation in periodontia.

4. One year, Full time, Daily.
   Monday through Friday, 9:00 A.M. to 4 P.M.
   September, 1955 to May, 1956.
   Tuition including books and instruments: $1145.50.
   Class limited to 6.
5. Two years, Half time, 2½ days weekly.
   September, 1955 to May, 1957.
   Tuition including books and instruments: $1145.50.
   Class limited to 8.

An introduction to the study of some of the more recent advances in the field of periodontia.

6. Ten sessions, Intermittent, Evening and afternoon.
   October, 1955 to December, 1955.
   First four lecture sessions—Wednesday, 7:00 P.M. to 9:00 P.M.
   Last six clinical demonstration sessions—Wednesdays, 4:00 P.M. to 6 P.M.
   Tuition including books and instruments: $202.50.

Further information concerning the courses listed above can be obtained by writing to the Secretary, Postgraduate Division, New York University College of Dentistry, 209 East 23rd Street, New York 19, New York.

SIXTH ANNUAL BERKSHIRE CONFERENCE

Tufts College Dental School announces the Sixth Annual Berkshire Conference in Oral Pathology and Periodontology to be held from June 19 to 23, 1955 at Eastover in Lenox, Mass.

The conference consists of four days of lectures, seminars, and panel discussions regarding clinical problems. The faculty includes outstanding teachers and clinicians in dentistry, medicine, and their related fields, who represent teaching institutions throughout the United States and Canada. The conference is arranged so that the mornings and evenings are devoted to professional activities with the afternoons open for recreation.

This conference is for general practitioners as well as individuals with specialized interests. Graduates of dental schools in the United States and other countries may apply. For further information and application write to: Sixth Annual Berkshire Conference, Tufts Dental School, 136 Harrison Avenue, Boston, Mass.

THIRD PUBLIC HEALTH WORKSHOP

"Health Education and Preventive Dentistry in Industry," is the theme of the Third Public Health Workshop, sponsored by the First District Dental Society of the State of New York with the Collaboration of the Postgraduate Medical School, Institute of Industrial Medicine, New York University. The Third Annual Conference will be held on Friday, January 21, 1955, at the Hotel Statler, New York City.

Dean Raymond J. Nagle, of the New York University College of Dentistry, will preside at the morning panel on "Health Education in Industrial Dentistry and Dental Public-Health."

Doctors Edward R. Aston and J. L. T. Appleton will preside at the afternoon panel on "Dental Health Education in Private and Institutional Practice."

Members of the health professions are cordially invited to attend all sessions. Write for Registration forms to Public Health Workshop, First District Dental Society, Hotel Statler, New York City.

REGULAR CORPS EXAMINATIONS FOR DENTAL OFFICERS UNITED STATES PUBLIC HEALTH SERVICE

A competitive examination for appointment of Dental Officers to the Regular Corps of the United States Public Health Service will be held in various places throughout the country on March 15, 16, 17, and 18, 1955.

Appointments provide opportunities for career service in clinical dental practice, dental public health, and dental research. They will be made in the ranks of Assistant and Senior Assistant, equivalent to Navy ranks of Lieutenant (j.g.) and Lieutenant, respectively.

Entrance pay for an Assistant Dental Surgeon with dependents is $6,017 per annum; for Senior Assistant Dental Surgeon with dependants, $6,918. Provisions are made for promotions at regular intervals.

Active duty as a Public Health Service officer fulfills the obligation of Selective Service.

Application forms may be obtained by writing to the Chief, Division of Personnel, Public Health Service, Department of Health, Education, and Welfare, Washington 25, D.C. Completed application forms must be received in the Division of Personnel no later than February 9, 1955.

COLLEGE OF DENTISTRY, OHIO STATE UNIVERSITY

The College of Dentistry, Ohio State University, has arranged a series of post-graduate courses to be presented during the first six months of 1955 for the general practitioner of dentistry and those interested specialists.

The schedule of January to June, 1955, courses is as follows:

Complete Denture Prosthesis	Jan. 17-21 April 4-8	Dr. Carl O. Boucher
Partial Denture Prosthesis	Feb. 21-25	Dr. Victor L. Steffel
Endodontics	Feb. 28-Mar. 4	Dr. J. Henry Kaiser
Crown and Bridge	Mar. 21-25	Dr. Frank C. Starr
Post-College Assembly	April 20 & 21	
Oral Surgery	April 25-29	Dr. Morgan L. Allison
General Anesthesia	May 2-6	Dr. Morgan L. Allison
Periodontology and Diseases of the Mouth on the Basis of Oral Pathology	May 9-13	Dr. John R. Wilson and Dr. H. B. G. Robinson
Pedodontics	May 16-20	Dr. Lyle S. Pettit and Dr. Benjamin H. Williams
New Advances in Restorative Dentistry (A three day course)	May 21, 22, 23	Dr. William Lefkowitz Mr. Ralph W. Phillips Dr. Harry H. Postle Dr. H. B. G. Robinson
Anatomy of the Head and Neck	June 6-10	Dr. Linden F. Edwards

Further information and application may be secured from the College of Dentistry, Ohio State University, Columbus 10, Ohio.

TUFTS COLLEGE DENTAL SCHOOL

The following courses will be offered at Tufts College Dental School during the academic year:

DPG. 303—General Anesthesia at the Boston City Hospital
Each Wednesday for eight weeks from March 2 to April 20, 1955
Tuition $150.00—Class limited to twelve—Dr. Stephen P. Mallet and Staff

DPG. 304—Intravenous Anesthesia for the Dental Office
Monday through Friday, March 21-25, 1955—Tuition $150.00—Class limited to fifteen
Dr. Harold Krogh, Washington, D.C. and Dr. Adrian O. Hubbell, Hollywood, Cal.

DPG. 305—Fractures of the Facial Bones
Eight Wednesdays from Jan. 12 to March 2, 1955
Tuition $125.00—Class limited to fifteen—Dr. Kurt H. Thoma and Dr. Edward L. Sleeper

DPG. 306—Techniques for Removal of Impacted Third Molar Teeth
Wednesday, May 25, 1955—Tuition $25.00—Class limited to ten—Dr. Edward L. Sleeper

DPG. 307—Electrosurgery
Five Consecutive Wednesday afternoons, 1 p.m. to 5 p.m., April 6 through May 4, 1955
Tuition $100.00—Class limited to ten—Dr. Moses Strock

Further information concerning the courses listed above can be obtained by writing the Director of Graduate and Postgraduate Studies, Tufts College Dental School, 136 Harrison Avenue, Boston, Massachusetts.

BETH ISRAEL HOSPITAL, BOSTON, MASS.

The teaching Division of the Dental Department of the Beth Israel Hospital announces a two week conference and seminar in Periodontology from May 9th to the 20th, 1955.

The objective of this seminar is to present to the practitioner all of the techniques employed in periodontal therapy as well as theoretical background. It will include etiology, diagnosis, and treatment of various diseases of the supporting tissues of the teeth. Periodontal pocket therapy as well as an over-all mouth rehabilitation program will be stressed. Local environmental factors and systemic influences in periodontal therapy will be discussed. The material will be presented by lectures, demonstrations and clinics. The fee for the course is $350.00. Co-Directors of this seminar are Henry M. Goldman, D.M.D., and Bernard Chaikin, D.M.D.

For further information, write to: Coordinator of Education Program, Beth Israel Hospital, 330 Brookline Avenue, Boston 15, Mass.

LOYOLA UNIVERSITY, CHICAGO COLLEGE OF DENTAL SURGERY

Dr. Balint Orban will present a three day course on "Theory and Practice of Periodontics," January 20, 21, 22, 1955.

The instruction will include the scientific concept of periodontal treatment based on biological principles; diagnosis; treatment planning; prophylaxis—home care, curettage and periodontal surgery; case maintenance—splints; retainers and occlusal equilibration.

Tuition: $100.00. Class limited to 15.

For information please write to Dr. F. M. Wentz, Director, Postgraduate Division, 1757 West Harrison St., Chicago 12, Illinois.

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